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Factors Influencing National Implementation of Online Computer-aided Cognitive Behaviour Therapy in Primary Care Trusts across England
A Mixed-Methods Study

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Factors Influencing National Implementation of Online Computer-aided Cognitive Behaviour Therapy in Primary Care Trusts across England: A Mixed-Methods Study

Luca Palmili

PhD thesis

Innovation— any new idea—by definition will not be accepted at first. It takes repeated attempts, endless demonstrations, monotonous rehearsals before innovation can be accepted and internalized by an organization. This requires courageous patience.

(Warren Bennis)

The difficulty lies not in the new ideas, but in escaping from the old ones, which ramify, for those brought up as most of us have been, into every corner of our minds.

(John Maynard Keynes)

When you innovate, you've got to be prepared for everyone telling you you're nuts.

(Larry Ellison)

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ABSTRACT

Many Primary Care Trusts (PCTs) across England adopted NICE-recommended Computer-aided CBT (CCBT) FearFighter™ (*FF*) for panic/phobia. *FF* was clinically and cost-effective in open and randomised controlled trials, but factors affecting its national implementation in the NHS deserve investigation. This mixed-methods study examines factors influencing patients' uptake, completion rates and clinical improvement with *FF* at 3 levels: i) PCT (macro); ii) Service Provider (meso); iii) Supporter (micro).

Thirty PCTs participated (out of 61 which purchased *FF*), totalling 37 teams. Staff from 30 teams were interviewed, as were 6 Nurse Advisors (NAs; company staff supporting *FF*'s implementation). All interviews were analysed with Greenhalgh et al's (2005) model for the diffusion of innovations in health care organisations. The NAs reported activity (training, workshops, surgery visits), and levels of involvement for each PCT. All 37 Leads reported screening/assessment procedures, other interventions offered, and barriers and boosters. Across the 37 teams, 171 supporters reported length and type of support offered to *FF* patients, training details, treatment preferences, and opinions about CCBT. Anonymised outcome data for 3,528 *FF* NHS patients were extracted.

Three factors (past experience of the Lead, number of self-help books available and length of assessment) explained 76% of the variance in *FF*'s uptake. Availability of specific self-help books reduced *FF* completion rates. Phone screening associated negatively with *FF* clinical improvement. At Supporter level, past experience of CCBT associated with less usage of *FF*. A flexible and adaptive PCT structure (as rated by the NAs) predicted higher *FF* uptake. The qualitative analysis revealed that alternative interventions, Supporters' attitudes and organisational issues were the 3 main barriers to implementation.

Like any innovation, CCBT faces obstacles when implemented in routine care. Attention is needed to how CCBT fits with existing interventions and to the background and attitudes of staff delivering it.

ACKNOWLEDGMENTS

"The secret of genius is to carry the spirit of the child into old age, which means never losing your enthusiasm." This quote by Aldous Huxley summarises better than anything else my admiration and sincere gratitude to **Professor Isaac Marks**. His childlike curiosity combined with the experience of a world-class researcher has been a great source of inspiration throughout these years. Thanks Isaac for your staunch support in the most difficult moments and for always fostering my critical thinking, which is the essence of scientific research.

Without Isaac this study would not have existed, but it is only thanks to **Professor André Tylee** if it was turned into a PhD project. Thanks André for your excellent supervision during these years and for your talent in always making me feel at ease whatever the circumstances so I could give the very best. I felt I could always rely on you, and that is a great quality for a supervisor.

Among the many professors met in these years, I would like to acknowledge **Professor Giovanni Andrea Fava**, my supervisor during the MSc at the University of Bologna in Italy. Thanks for telling me at the time "if you want to do a PhD on CCBT, the person you need to talk to is Isaac Marks". May CBT thrive in Italy one day and CCBT with it! I am also grateful to **Professor David Funder** at the University of California, Riverside, where I did the research for my MSc thesis. The experience in his lab was a life-changing one, and I owe it to him if since my return to Italy I had my mind set on doing a PhD.

Doing a PhD on a rapidly-expanding field like CCBT has been exciting and I felt privileged in sharing ideas with like-minded researchers at the International Society for Research on Internet Interventions (ISRII). Thanks to **Professor Lee Ritterband** for welcoming me in the Society and to **Professors Pim Cuijpers, Heleen Riper, Gerhard Andersson, and Per Carlbring** for the fruitful exchanges of ideas at our recent meetings (look forward to catch up with you soon at the earliest occasion!). Thanks to ISRII member **Dr Lina Gega** for her suggestions about this research project.

Some people say that doing a PhD is a solitary experience, but in my case it has not been lonely with the help of **Luca Passoli**, research assistant. Seeing the passion for research shining in his eyes has been one of the most rewarding moments of my PhD. I wish you the very best, Luca, whatever career you will choose. I would also like to

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At **CCBT Ltd**, I would like to thank every employee who, in one way or another, has helped me during these years. A special thank to the Board for approving this project, and to CEO **Nick Niziolomski** and FD **Tim O'Connell** for their outstanding support and for allowing the necessary flexibility to complete this project when it was most needed. I would also like to thank my colleague **Mohammed Shabbir**, who did his best to facilitate my dual role as Implementation Manager and PhD student. Among others, I would like to thank developers **Musa Khan** and **Jason Trott** for their help with database planning and data extraction.

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A research project cannot be done unless you have participants in your study. A very heartfelt "thank you" to all the **Leads** and **Supporters** who generously took part in this study. Many thanks to the **Nurse Advisors** who contributed with their time and to their manager **Anita Osborn** at Ashfield In2focus for consenting their participation in this study.

On a personal level, I would like to thank my father **Pietro** and my mother **Rosa** for everything they have done for me since day 1, and for the importance they have always placed on my education. I am grateful to my sister **Michela** and brother-in-law **Nicola** for their constant support throughout the years and... Uncle Luca can't wait to spend some time with the little ones, **Francesco Saverio** and **Pier Maria**!

The last person I want to acknowledge is my dear **Pamela**, wife and best friend. Thank you for your love, intelligence and tireless support throughout these intense years. To you, *dolce amore mio*, I dedicate this work.

LIST OF ABBREVIATIONS

BtB = Beating the Blues™

CBT = Cognitive Behaviour Therapy

CCBT = Computer-aided (or Computerised) Cognitive Behaviour Therapy

CCBT Ltd = Company marketing *FF*

DoH = Department of Health

FF = FearFighter™

HSPR = Health Service and Population Research Department, Institute of Psychiatry

IAPT = Increasing Access to Psychological Therapies

IQR = Interquartile range

LLTTF = Living Life to the Full

LP = Luca Palmili (Principal Investigator)

MG = MoodGym

NA = Nurse Advisor (CCBT Ltd staff who assisted *FF* implementation in the NHS)

NHS = National Health Service

NICE = National Institute for Clinical Excellence

PCT = Primary Care Trust

PI = Principal Investigator (Luca Palmili)

PPMS = Patient Progress Monitoring System

RCT = Randomised controlled trial

SD = Standard deviation

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1. INTRODUCTION

Contextualisation of the study

This study is an investigation of how a complex, technology-based innovation was implemented in Primary Care Trusts (PCTs) across England. The innovation on which this dissertation focuses is a computer-aided CBT package (FearFighter™; *FF*) which was recommended by the National Institute for Clinical Excellence (NICE) in 2006 for the management of panic and phobia in the National Health Service (NHS).

My interest in technology applied to mental health dates back to 2005, when I was a visiting student at the University of California, Riverside. I was carrying out experimental research for my Masters in Clinical Psychology, which focused on the social perception of depression. With the help of a PhD student in the Computer Science department, I devised a web-based experiment which I then ran with 200 participants, testing whether providing evidence-based information to lay people about the signs and symptoms of depression helped them to recognise this disorder more accurately. It didn't take me long to appreciate the potential of the Internet not only for research and data collection, but also as a powerful medium to deliver psychological therapies.

Upon my return to Italy and subsequent graduation from the University of Bologna in 2006, I maintained this interest alive. While I was undertaking my clinical placements, I began thinking about doing a PhD on the topic. My supervisor put me in contact with Prof. Isaac Marks (IM), who had been among the pioneers in the field of Computer-aided Cognitive Behavioural Therapy (CCBT) in the UK. In June 2007, I was awarded a 5-month Leonardo scholarship from the European Union. The Leonardo project aims at fostering collaboration between academia and Small-Medium Enterprises (SMEs). The grant explicitly required the recipient to be based in a SME within the EEA, rather than in an academic department as with other EU awards. I hence joined CCBT Ltd in September 2007, a start-up co-founded by Prof. Marks to commercialise the CCBT packages his research group had produced over the years, both at the Institute of Psychiatry and Imperial College. Further to NICE's recommendation, PCTs began purchasing licences for *FF*. CCBT Ltd was expanding rapidly at the time and I was offered a permanent position as Implementation Manager, which I still maintain. My role within the company is to manage the clinical and operational aspects of the implementation of CCBT in the NHS, working directly with NHS management

(Commissioners, Service Managers, and Clinical Leads) to implement models of best practice for referral, screening, and support for patients utilising CCBT. In other words, my role is to help set up *FF* within NHS services and train teams of professionals how to use it. The vast majority of PCTs purchased licences for *FF* only, although in more recent years the company released further CCBT interventions and I have been responsible for their implementation as well.

From September 2007 to June 2008 I worked in this business-only role. Since the beginning of my PhD in July 2008, my time was spent both on managing and researching implementation, and the majority of the business activities I was involved in were directly relevant to my research. The company funded my PhD fees and paid my salary. Despite my significant involvement in a for-profit enterprise, my role within the company is not strictly commercial. I am not responsible for negotiating sales or renewals, and my Key Performance Indicators (KPIs) do not include acquiring new contracts/maintaining current ones. I am evaluated on the basis of the service I deliver to existing customers. Moreover, this study is not oriented toward the development of new CCBT products which can be commercially exploited. The company's decision to fund me was based on the importance of acquiring knowledge on how to facilitate the dissemination of CCBT packages in the NHS.

This PhD could not have been possible without my involvement with CCBT Ltd. Being its employee has given me privileged and unrestricted access to data on the implementation of CCBT by PCTs across England which would otherwise have been inaccessible. Moreover, my experience concerning the management of clinical and operational aspects of CCBT implementation in the NHS has been very useful in planning the research. The business experience acquired prior to starting the PhD and the relationships I developed with NHS professionals provided me with essential insights, and it contributed substantially to the generation and refinement of the variables included in this study.

It goes without saying that my concomitant role of employee of a company and researcher investigating the implementation of one of the company's products poses a potential risk to maintaining the necessary objectivity. To minimise this, throughout the PhD my business role was clearly distinguished from my research role. With the exception of IM, no other employee/shareholder of CCBT Ltd had access to the identifiable data collected through questionnaires/interviews or had any role in the

planning of the research, analysis of data or writing up of results. Senior management were informed of the results when they became available, but no personal details of the participants were revealed. Raw data were shared only within the research team. Secondly, although IM is the Clinical Director of CCBT Ltd and a major but not majority shareholder of the company (he is also the second supervisor of this dissertation and Emeritus Professor at the Institute of Psychiatry, King's College), the first supervisor, Prof. André Tylee, is Professor of Primary Care Mental Health at the Institute of Psychiatry, King's College and has no connection with the company, thus providing an important check on potential unwitting biases by me and IM. Third, in order to minimise observer bias, all questionnaires were self-rated by participants and administered via the web (Prince et al, 2003), thus providing standardisation and reducing the risk of the interviewer emphasising certain questions more with certain subjects than with others (e.g. when the interviewer might have already sensed the likely answer to a certain question from his previous experience of dealing with that participant). No blinding was possible, partly because the lack of additional funding prevented the possibility of recruiting an independent researcher and partly because it was felt that the benefits of already knowing most of the participants outweighed the risk which would have been incurred by training an independent researcher who would have needed to go through a significant learning curve to learn about the background and issues in each of the sites under study. Fourth, it must be acknowledged that I come from a pro-CCBT culture, which is reinforced by my role within the company. Particular attention was paid to avoid a "pro-innovation bias", i.e. the expectation that an innovation is by definition inherently good and should be swiftly adopted by all members of a social system (Rogers, 2003). As will be evident throughout this dissertation, examples of difficult implementations and negative outcomes were more frequent than stories of success, hence this thesis is by no means a marketing exercise. Findings from this study (especially from its qualitative part) were overall unfavourable to CCBT but they are nonetheless fully disclosed.

In a new field like CCBT, it is not unusual for the early research to be sponsored and/or pursued by the inventors who have a vested interest in its success. The literature is not short of examples showing how drug companies have repeatedly manipulated the data to exaggerate the benefits of a new drug, either by withholding publication of negative studies (Goldacre, 2012), or cherry-picking data to be published and publishing the same positive study more than once (Kirsch, 2010). In industry-sponsored research,

what I believe is fundamental is to fully declare any conflict of interests and to call for readers to exercise an even closer scrutiny in order to rule out potential biases. With CCBT coming of age, the hope is that independent researchers who want to investigate the national implementation of CCBT could replicate this study yet overcome its limitations.

Background

The World Health Organisation estimates that mental health problems contribute 23% of the global burden of disease in developed countries (World Health Organization, 1999). In the UK, over 15% of the population suffer from depression, anxiety, or mixed anxiety and depression at any given time, of whom 76% do not receive treatment for their condition (McManus, Meltzer, Brugha, Bebbington, & Jenkins, 2009). Under-recognition of anxiety and depression in primary care is a significant problem (Tylee & Walters, 2007); yet, among those asking for help, approximately one-third sought it from their GP in the previous year (Bebbington et al., 2003). The point prevalence for receiving psychotherapy or counselling is only 10%, with just 2% having cognitive or behaviour therapy (McManus, et al., 2009). Quality of life in depressed/anxious patients and their relatives is severely compromised (Mendlowicz & Stein, 2000; Wittmund, Wilms, Mory, & Angermeyer, 2002) and societal costs are high (Layard, 2006a; Smit et al., 2006). Since the early 1990s, mental and behavioural problems have surpassed musculo-skeletal diseases as the main reason for the award of incapacity benefits (Cattrell et al., 2011).

Most people with depression and anxiety prefer psychological treatment over psychotropic medication (Tylee, 2001). However, over the last decades, the supply of trained therapists fell short of demand (Lovell & Richards, 2000), and their geographical distribution has been uneven across the UK (Shapiro, Cavanagh, & Lomas, 2003). Fear of stigma often prevents patients from seeking help (Thornicroft, 2008). Only a minority of anxious/depressed patients seek help within the first year of the onset of their disorder, and the median delays among those making contact range from 1 to 14 years for mood disorders and from 3 to 30 years for anxiety disorders (Wang et al., 2007).

The UK government recently launched a large-scale initiative to improve access to psychological therapies (Layard, 2006b) by setting up dedicated Primary Care Mental Health teams throughout the English National Health Service (NHS), providing cognitive behaviour therapy for depression and anxiety disorders (Improving Access to Psychological Therapies, 2008). Within IAPT, treatments are usually divided along the Step 2 vs Step 3 line. Step 2 options are the so called "low-intensity" interventions, delivered by more junior – albeit qualified – staff (Band 5 Psychological Wellbeing Practitioners), and they normally comprise guided self-help, behavioural activation, problem-solving, relaxation, psycho-educational groups and CCBT. Guided self-help and CCBT can be supported either face to face or on the phone, depending on local protocols. Behavioural activation and relaxation are usually carried out face-to-face. Treatment duration varies, but normally patients are seen for up to 6 sessions. Step 3 treatment, on the other hand, is high-intensity CBT, delivered by more senior professionals (Band 7 qualified CBT therapists or clinical psychologists with CBT expertise). Work is carried out in a traditional one-to-one, face-to-face setting and the duration of treatment is usually longer (usually, up to 12 weeks). Two initial demonstration sites were set up in Doncaster and Newham and, upon their successful initial evaluation (Clark et al., 2009), the programme was rolled out nationally. To date, IAPT services have been implemented in 95% of English Primary Care Trusts (PCTs); those PCTs have received a total funding of £309 million over their first 3 years (Clark, 2011). Most funding was dedicated to training new staff, 60% of whom are High-Intensity (CBT) Therapists and 40% are Psychological Wellbeing Practitioners.

The provision of low-intensity interventions has received much attention recently. Their advent was welcomed as a new paradigm in mental health care, denoting the start of a new era (Bennett-Levy et al., 2010). Low-intensity interventions are defined as treatments that aim "to increase access to evidence-based psychological therapies in order to enhance mental health and wellbeing on a community-wide basis, using the minimum level of intervention necessary to create the maximum gain" (Bennett-Levy, Richards, & Farrand, 2010, p.8). The contribution of low-intensity interventions within the newly-established IAPT teams has been widely acknowledged, in particular regarding their potential to achieve high throughput (Clark, et al., 2009). Low-intensity interventions include a wide array of delivery methods, including self-help books, behavioural activation, psycho-educational groups and computer-aided CBT.

Computer-aided CBT

Introduction

Cognitive-behaviour therapy (CBT) is effective for anxiety and depression (Roth & Fonagy, 2005) and the National Institute of Health and Clinical Excellence in the UK recommends CBT for these disorders (National Institute for Clinical Excellence, 2004, 2009). Computer-aided Cognitive Behaviour Therapy (CCBT) is a novel way of delivering CBT. Unlike other settings where the technology facilitates the therapist-patient interaction (e.g., videoconferencing, email), CCBT systems delegate at least some treatment decisions to a computer, thus saving therapist time. This dissertation uses Marks et al.'s definition of CCBT, describing it as "any system that aids psychological treatment by making at least some computations and decisions without any interaction with a human" (Marks, Shaw, & Parkin, 1998, p.152).

History

Historically, four waves of computer-aided therapy can be identified (Cavanagh & Shapiro, 2004; Cavanagh, Zack, & Shapiro, 2003). The first researchers to explore the use of computers in psychotherapy were Kenneth Colby and colleagues (Colby, Watt, & Gilbert, 1966) and Joseph Weizenbaum (Weizenbaum, 1966). In the same year, they created what became known as *tickertape therapists*, machines whose role was to mimic the natural psychotherapy dialogue with a psychotherapist. Weizenbaum invented ELIZA, a machine that could simulate a person-centred, Rogerian psychotherapist. However, he never intended to devise a computer that could replace the human therapist. Reactions from the lay public to his invention led him to clarify his views in an influential book which appeared a decade later, in which he described the limits of computers (Weizenbaum, 1976). The second wave of computer-aided therapies appeared with the advent of exposure-based methods which could be highly structured for delivery via a computer. The third wave involved cognitive packages for depression and anxiety, which reflected the advent of cognitive psychotherapies (Selmi, Klein, Greist, Johnson, & Harris, 1982). Finally, the fourth wave combined both behavioural and cognitive elements which are delivered via a multimedia, interactive interface.

Delivery modes

A wide range of technologies have been used to deliver psychological interventions. A main distinction can be made between *peripheral* and *central* access (Marks, Cavanagh, & Gega, 2007b). Peripheral (or *stand-alone*) packages are installed on the local hard-disk of remote machines (or run on a CD-ROM/DVD) and do not need to be connected to the internet to operate. This can be an advantage where there is no internet access but it presents significant obstacles when the software requires updating or data needs to be collected. Over the years there has been a gradual move towards centrally-accessed CCBT. Patients can log into an online program from any location of their choice, as long as a connection to the internet is available. Centrally-accessed CCBT can be easily updated in line with latest best-practice guidance, and changes are automatically propagated to connected machines when they access the central server.

CCBT programs were delivered also by Interactive Voice Response via phone (IVR; Osgood-Hynes et al., 1998), and by biofeedback machines where a computer gives feedback to the patient in a way similar to what gym-users see on a treadmill's screen when they exercise (Meuret, Wilhelm, & Roth, 2004). Virtual reality is a further delivery mode; it has been used extensively to treat anxiety disorders (Krijn, Emmelkamp, Olafsson, & Biemond, 2004).

A recent technology medium which has attracted increasing research interest is the mobile phone (Patrick, Griswold, Raab, & Intille, 2008). In particular, smartphones (mobile phones able to perform advanced tasks like connecting to the internet, checking emails) have been used in a variety of medical settings (R. J. Mitchell et al., 2011). Smartphones equipped with Global Positioning System (GPS) allow real-time tracking of the user's position which can facilitate treatments based on self-learning and predictive algorithms (Burns et al., 2011).

Open-access vs. commercially-available CCBT

Another important distinction in CCBT is between *open-* (or free) *access* packages and *commercial* systems. Some authors in the UK have advocated the use of free-access CCBT (Gournay, 2006). Open-access systems can be used by any user connected to the internet. After brief registration, the user can log in with a username and password of their choice. Access is thus unrestricted. Commercially-available CCBT packages are

purchased either by a health organisation (e.g., Primary Care Trust) or by the end user, so they are not freely available. Each modality has advantages and disadvantages (Marks & Cavanagh, 2009; Marks, et al., 2007b). Giving free-access to CCBT can greatly increase the total number of visitors to a site, while access to commercial CCBT can be more limited. The profit motive behind commercial packages may increase the risk of ineffective programs spreading (Tate & Zabinski, 2004), though regulatory bodies such as NICE might reduce this risk.

Open-access programs are often described as "free" (implying no cost in accessing the intervention), though the costs of developing, maintaining and updating the IT systems has to be paid by someone (e.g., Australian federal funding supported the development of MoodGym's open-access CCBT for depression). Sustainability of free-access CCBT has been highlighted as a major issue (Christensen & Griffiths, 2007). Another problem of free-access CCBT is that users might be unsuitable for the program in question. This might be one reason for the high attrition found with unscreened/unsupported CCBT (Farvolden, Denisoff, Selby, Bagby, & Rudy, 2005).

Evidence base for CCBT

RCT (randomised controlled trial) evidence for CCBT has mushroomed in recent years, and standards were recently defined for reporting it (Proudfoot et al., 2011). A plethora of programs have been developed for a wide variety of mental health problems. To date, RCTs were published for packages treating depression (Bowers, Stuart, Macfarlane, & Gorman, 1993; Christensen, Griffiths, & Jorm, 2004; Clarke et al., 2005; Proudfoot et al., 2004; Selmi, Klein, Greist, Sorrell, & Erdman, 1990; Wright, Wright, & Beck, 2004), general anxiety (Paxling et al., 2011), adolescent anxiety (S. H. Spence et al., 2011), post-traumatic stress disorder (J. Spence et al., 2011), obsessive-compulsive disorder (Greist et al., 2002), panic/phobia (Carlbring, Westling, Ljungstrand, Ekselius, & Andersson, 2001; Klein, Richards, & Austin, 2006; Schneider, et al., 2005), eating problems (Schmidt et al., 2008), smoking reduction (Strecher, Shiffman, & West, 2005), alcohol problems (Cunningham, Wild, Cordingley, van Mierlo, & Humphreys, 2009; Riper et al., 2008), distress from tinnitus (Andersson, Stromgren, Strom, & Lyttkens, 2002), and insomnia (Ritterband et al., 2009; Vincent & Lewycky, 2009). A Maudsley monograph (Marks, et al., 2007b) reviewing the English CCBT world literature (including non-RCT studies) identified 97 systems across 175 studies, of

which 103 were RCTs. More recent studies tested the efficacy of transdiagnostic packages, i.e. single CCBT interventions addressing different anxiety disorders (Johnston, Titov, Andrews, Spence, & Dear, 2011) or anxiety and depression (Titov et al., 2011) at the same time. Individually-tailored treatments (where therapists can prescribe specific modules rather than the whole package) have also been put forward for testing (Carlbring et al., 2011).

Several systematic reviews[1] and meta-analyses[2] on computer-aided CBT have appeared in the English-language literature in recent years, focusing on specific aspects (e.g. clinical efficacy, cost effectiveness) or clinical problems (e.g. anxiety, depression, obsessive-compulsive disorder, problem drinking). Cost-effectiveness evaluations showed the financial viability of CCBT (Gerhards et al., 2010; McCrone et al., 2004; McCrone, Marks, Mataix-Cols, Kenwright, & McDonough, 2009). An independent systematic review by Kaltenthaler and colleagues (2006) culminated in NICE's Technological Appraisal 097 (National Institute for Clinical Excellence, 2006) recommending 2 CCBT packages for use in the English National Health Service - Beating the Blues™ (*BtB*) for mild to moderate depression and FearFighter™ (*FF*) for panic and phobia. Further to NICE's recommendation, the Department of Health issued an Implementation Guidance document (Department of Health, 2007) expecting all Primary Care Trusts in England to offer *BtB* and *FF* to their patients by 31st March 2007.

[1]See Kaltenthaler et al. (2002), Kaltenthaler, Parry, & Beverley (2004), Kaltenthaler et al. (2006), Mayo-Wilson & Montgomery (2007), Tumur, Kaltenthaler, Ferriter, Beverley, & Parry (2007), Bewick et al. (2008), Cuijpers, van Straten, & Andersson (2008), Kaltenthaler, Parry, Beverley, & Ferriter (2008), Kaltenthaler et al. (2008), Postel, de Haan, & de Jong (2008), Christensen, Griffiths, & Farrer (2009), Waller & Gilbody (2009), Richardson, Stallard, & Velleman (2010), Tait & Christensen (2010), Webb, Joseph, Yardley, & Michie (2010), Donkin et al. (2011), Lehto & Oinas-Kukkonen, (2011).
[2]See Wantland, Portillo, Holzemer, Slaughter, & McGhee (2004), Spek et al. (2007), Barak, Hen, Boniel-Nissim, & Shapira (2008), Barak, et al., (2008), Andersson & Cuijpers (2009), Cuijpers et al. (2009), Reger & Gahm (2009), Riper et al. (2009), Andrews, Cuijpers, Craske, McEvoy, & Titov (2010), Velleman, Stallard, & Richardson (2010), Kodama et al. (2011), Riper et al. (2011).

From evidence-based interventions to evidence-based implementation

In addition to clinical efficacy and cost-effectiveness, further areas likely to impact on how CCBT is delivered have come under the spotlight.

As the field of CCBT matures, it's important to move the focus from *efficacy* to *effectiveness* studies (Andersson, Carlbring, & Cuijpers, 2009). Efficacy studies test "whether a technology, treatment, procedure, or program does more good than harm when delivered under optimum conditions" while effectiveness studies test "whether a technology, treatment, procedure, intervention, or program does more good than harm when delivered under real-world conditions" (Flay, 1986, p.451).

In a post-RCT study, stand-alone CCBT for depression was effective when delivered in 11 GP surgeries in an open environment (Cavanagh et al., 2006). In an open trial in West London, CCBT greatly reduced clinicians' per-patient time without impairing treatment efficacy (Marks et al., 2003). Even though some patients still prefer face-to-face contact with a clinician, those who engage with computer self-help report high satisfaction (Cavanagh et al., 2009; MacGregor, Hayward, Peck, & Wilkes, 2009).

Despite initial positive results, difficulties in CCBT delivery emerge as the field matures. A novel delivery method like CCBT will naturally meet resistance from some therapists and other clinicians including GPs, due to worry that its introduction might interfere with the clinical relationship (K. E. Green & Iverson, 2009) and might cause some loss of therapist posts, just as the spread of self-help years ago was perceived as a threat by behaviour therapists working in private practice (Marks, 1989). Other problems are frequent drop-outs (Eysenbach, 2005) and much time spent in organising the delivery of CCBT and support of patients using it (Fox, Acton, Wilding, & Corcoran, 2004).

Being an unfamiliar method of delivery, there is a risk of CCBT being sub-optimally implemented in the post-RCT phase in uncontrolled everyday settings. Many factors (how well CCBT's availability and mode of referral is made known, how patients are screened and referred, how support is organised, structural factors within and across organisations implementing CCBT, etc…) can impact on CCBT's delivery, especially when it is delivered not by researchers but by local primary care staff for whom this is but one of their numerous routine duties. The challenge for a maturing technology such

as CCBT is for it to become embedded within existing care rather than just delivered (and studied) as an intervention on its own (Cavanagh & Shapiro, 2004). Research is needed on ways to overcome the *third roadblock* - the gap between the formulation of clinical guidelines and its adoption in routine practice - on the translational pathway (Tansella & Thornicroft, 2009).

To evaluate new interventions being disseminated in the field, the Medical Research Council published a framework to facilitate research into complex interventions (M. Campbell et al., 2000; Medical Research Council, 2000, 2008). Complex interventions contain several interacting components (Craig et al., 2008). Context, for instance, must be taken into account (Pawson & Tilley, 1997), as the same intervention delivered in two different settings can yield very different outcomes. Negative results might be caused either by an ineffective intervention or by an effective but inadequately applied intervention (N. Campbell et al., 2007).

The need to go beyond RCT-outcome data to include factors which are context-dependent is also highlighted by "diffusion of innovations" research (Rogers, 2003). The terms diffusion, dissemination and implementation are sometimes used interchangeably. Over 30 different definitions were found by Grimshaw (2007 – cited in Proctor et al., 2009). *Diffusion* is commonly described as a passive process (Lomas, Brook, Power, Chalmers, & Peto, 1993) requiring no active effort. *Dissemination*, in contrast, implies active communication with selected audiences. *Implementation* requires not just generation of awareness but, in addition, concrete methods to overcome resistance to behaviour change (*ibid.*). It is no surprise that Proctor and colleagues called current implementation science 'embryonic' (2009, p.32). As yet it has no widely-agreed theory. The range of relevant phenomena is so broad that they require many different perspectives, and implementation evidence is still sparse. There are many examples of long delays before effective interventions were disseminated successfully. Over 40 years passed from James Lind's demonstration that citrus juice prevented scurvy to the daily giving of lemon juice to sailors in the British Navy (Berwick, 2003). Decades after studies showed the value of CBT for common mental health problems its delivery still lags lamentably behind demand in most countries. On average, 17 years elapsed before a variety of clinical innovations were implemented in routine practice (Balas & Boren, 2000).

Such examples show how stony the path is that leads from developing an effective new intervention to implementing it well in everyday care. Bridging the gap between research and practice is not easy. Socio-political, administrative, economic and professional issues can pose significant impediments (Marks & Scott, 1990). Policy makers may regard the large-scale implementation of evidence-based interventions as being too costly or risky with too many unforeseen effects (Marks, 1989). The cost of failing to make best-evidence treatments available can be huge (Berwick, 2003) due to continuing burden of illness on untreated sufferers, their families and the community, and wastage of the costs of developing those treatments. Evidence-based medicine, therefore, should go hand in hand with evidence-based implementation (Grol, 1997).

Literature review

This section aims to carefully review the English-language literature relevant to this thesis. A narrative review was chosen as the best way to link very heterogeneous studies across different topics (Baumeister & Leary, 1997).

Search keywords

Initial searches were made on PsychINFO, EMBASE, Ovid, Web of Science, and PubMed using the keywords described in Table 1-1. Boolean operators (ANDs and ORs) were used to combine different terms. Question marks (?) captured different spellings (e.g. self-help vs. self help) and asterisks (*) were used with some truncated words to identify derivatives (e.g., technolog* captured both technology and technological). Searches were conducted either at the abstract (.ab) or title (.ti) level and terms were grouped across 9 categories. Categories were later combined (e.g. categories 1 AND 5) to narrow the scope of the search and identify the most pertinent studies.

Table 1-1. Keywords for initial searches

No.	Theme	Search string
1	CCBT/Self-help	((beating and blues) or ccbt or fearfighter or mood?gym or self?help).ab.
2	IAPT	(improving and access and psychological and therapies).ab.
3	NHS	nhs.ti.
4	Computers/Technology	(technolog* or internet or web or informatic* or multimed* or online or computer*).ab.
5	Implementation	(implement* or delivery or guideline* or disseminat*).ti.
6	United Kingdom	(england or wales or united kingdom).ti.
7	Mental health/CBT	((mental and health) or cbt or cognitive behavio* therapy).ti.
8	Primary care	(((primary or routine) and care) or (general and practitioner*)).ti.
9	Success factors	((success* and (factor* or variable*)) or enhanc*).ab.

The initial searches yielded 175 core papers. Protocol-driven searches were complemented by other methods (Greenhalgh & Peacock, 2005). "Snowballing" (pursuing references of references) was used to gather additional papers and identify major research streams. RSS (Really Simple Syndication) feeds were set up in order to keep up-to-date with relevant journals. Key journals were hand-searched (e.g. Journal of Medical Internet Research, Telemedicine and eHealth, Behavioural and Cognitive Psychotherapies, British Journal of Psychiatry, Implementation Science) to identify further studies. This literature review draws together selected studies on CCBT under 5 main themes: 1) uptake, 2) completion rates, 3) support, 4) clinical improvement, and 5) screening.

Main themes in the CCBT literature

Uptake

Relatively little is known about factors influencing patients' uptake of CCBT. Waller & Gilbody (2009) reviewed the quantitative and qualitative evidence of barriers to the uptake of computer-aided therapy. They found that a median of just 38% of sufferers

invited to begin a CCBT program (either open-access or commercial) actually started treatment. Different studies are difficult to compare due to the adoption of different recruitment strategies and the different settings in which CCBT programs are implemented. Many RCTs recruit patients who have already expressed an interest in participating in research on internet-delivered interventions (Carlbring et al., 2005). This poses problems, as the sample is already highly-selected and unlikely to be representative of sufferers in the general population (Woodford, Farrand, Bessant, & Williams, 2011).

Patients' treatment preference

Surveys to address treatment preferences of service users have yielded contrasting results. In the US, a survey of 658 primary care patients found that the vast majority of respondents (91%) would prefer face-to-face help, vs. 48% who would be interested in an internet-delivered intervention (Mohr et al., 2010). In a student survey, computer-aided therapy ranked 12th out of 14 in the preference list of treatments for post-traumatic stress disorder, while e-Therapy (interaction with a live therapist over the internet) was the least-preferred option (Tarrier, Liversidge, & Gregg, 2006). Among other students, less than 10% said they preferred CCBT to other interventions, though this percentage increased to 30% when the program was shown to them (N. Mitchell & Gordon, 2007). In contrast with these studies, Graham et al (2000) found high levels of acceptance for computer-aided psychotherapies, with 91% of surveyed individuals wanting access to self-help via a computer system; the 91% preference rate might be because surveyed subjects responded to a teletext article on self-help and so already accepted indirect contact, and 82% wanted access at home.

Clinicians' attitude

While the literature on patients' preference has not yet given a conclusive answer, several studies have shed some light on clinicians' perceptions of CCBT and self-help. Most CCBT programs require brief screening and support, which is usually from trained professionals who often also offer CCBT to patients and set them up on the system. Understanding clinician's perspectives and attitudes towards CCBT is therefore important. Positive attitudes can markedly influence uptake of CCBT among patients (Learmonth, Trosh, Rai, Sewell, & Cavanagh, 2008).

In the previously-cited review by Waller & Gilbody (2009), therapists were more negative about CCBT than were clients. In a survey of members of the British Association of Behavioural and Cognitive Psychotherapies (BABCP), only 2% of the clinicians reported using CCBT, and they perceived it as being mainly a supplement rather than an alternative to face-to-face therapy (Whitfield & Williams, 2004). Participants expressed concerns over CCBT's effectiveness, though only 48% had read any outcome evidence on computer-aided self-help. Most of the practitioners could not name any computer-aided package and many expressed an interest in receiving further training. Only 2 of 329 practitioners believed that patients would be more satisfied with CCBT than with direct therapist input, while 49% had concerns about the potential increased use of computer-aided self-help in the future. Worries about receiving institutional backing for the use of CCBT were also reported.

A recent study replicated Whitfield & Williams' study with a sample of clinical psychologists in Norway (Nordgreen & Havik, 2011)[3]. Overall, results were comparable. Self-help materials were recommended as an adjunct rather than a replacement by 70% of respondents. Written materials (self-help books/brochures) were recommended by 79%, while internet/computer-based programs were recommended by only 2% of participants. Clinicians who had not yet used computer-based programs with patients expressed the need for more information and training before they could begin using them. Most therapists rated self-help materials as inferior to therapist-led interventions. Recommendation of self-help materials was associated positively with having a CBT orientation and negatively with a psychodynamic/psychoanalytic orientation.

Other investigations reported findings in line with the above studies. In a study of counsellors' and psychotherapists' attitudes to self-help in primary care, only 16% thought self-help should be used on its own (Audin, Bekker, Barkham, & Foster, 2003). Stallard, Richardson, & Velleman (2010) surveyed the attitudes of 43 clinicians towards CCBT for children and adolescents. The biggest problems identified were lack of a therapeutic relationship and most participants felt that CCBT shouldn't be provided

[3]Two CCBT programs have been translated and introduced in Norway: MoodGym for depression (Christensen, Griffiths, Mackinnon, & Brittliffe, 2006) and a Swedish package for social phobia and panic disorder (Carlbring et al., 2006).

freely online without professional support. In an Australian internet survey of visitors (both lay people and clinicians) to the website of the Clinical Research Unit for Anxiety and Depression (CRUfAD), 58% of lay people and 71% of health professionals preferred face-to-face treatment; only 9% of lay people and 14% of health professionals preferred internet interventions (Gun, Titov, & Andrews, 2011). The authors highlighted the need expressed by participants to learn more about the effectiveness of internet interventions, their availability, and related ethical, legal and training issues.

In brief, there is a growing body of evidence describing clinician's scepticism towards CCBT. However, no study was found addressing how much these attitudes influence the actual prescription of CCBT in routine care and, consequently, patients' uptake. Moreover, most of the studies discussed above involved highly-qualified clinicians who would usually give intensive face-to-face therapy. Within Increasing Access to Psychological Therapies (IAPT) teams, these clinicians would usually be the High-Intensity therapists delivering Step 3 interventions. Few such therapists would be expected to deliver CCBT interventions which are usually at the Step 2 level delivered by more junior therapists (Psychological Wellbeing Practitioners).

Completion rates

Several terms in the literature describe completion rates of a computer-aided intervention. *Adherence* is "the extent to which individuals experience the content of the Internet intervention" (Christensen, et al., 2009, p.2). Eysenbach (2005) further distinguishes between *dropout* attrition (participants lost to follow up) and *non-usage* attrition (participants who stop using the interventions before their planned ending). Since follow-up data are less frequently reported in studies other than RCTs, this dissertation focuses mainly on non-usage attrition. A wide range of completion rates was reported across studies, ranging from as low as 1% (Farvolden, et al., 2005) to as high as 93% (Carlbring et al., 2007). A median of 56% of patients starting treatment completed a full course among the CCBT systems reviewed by Waller & Gilbody (2009). This is not far from the 33-40% level of attrition estimated with face-to-face therapy (Aubrey, Self, & Halstead, 2003). However, methodological issues can greatly complicate cross-study comparisons, e.g. across open-access websites vs. password-protected CCBT (Cavanagh, 2010). The characteristics of services in which the CCBT interventions are delivered are rarely described in sufficient detail to allow direct

comparisons. For instance, the same program (*BtB*) yielded very different completion rates across different reports, from as low as 27% (Johnson & Hinshaw, 2011) to as high as 62% (Cavanagh, et al., 2006).

Patients' characteristics

Some studies of reasons for attrition focused on patients' characteristics at baseline (Neve, Collins, & Morgan, 2010). In a systematic review of adherence in web interventions for anxiety and depression, lower disease severity positively predicted completion rates for both depression and anxiety interventions (Christensen et al, 2009). In other studies non-completers had less satisfaction (Wright et al., 2002) and less improvement (Greist, et al., 2002) than did completers. Personal circumstances were more often cited as reasons for dropping-out than were social background or difficulties with technology (Waller & Gilbody, 2009). In an evaluation of *BtB* in routine practice, completers rated *BtB* as more helpful, and had much lower pre-CORE and self-rated depression scores, than did non-completers, while age or gender did not influence completion rates (Johnson & Hinshaw, 2011). In another *BtB* evaluation in a secondary care specialist CBT service, men dropped out significantly more than women did (Bayliss & Willis, 2010).

Programs' characteristics

The design of a CCBT intervention can also influence completion rates (Cavanagh, 2010). An attractive presentation of content and strategies to remind patients to login is likely to increase adherence. The main long-term barrier to the use of a web application to support self-care of patients with type 2 diabetes was the lack of "push" factors (reminders), which made the application less user-friendly (Nijland, van Gemert-Pijnen, Kelders, Brandenburg, & Seydel, 2011). Ongoing research is exploring the effectiveness of social networks in improving the uptake and completion rates of CCBT for insomnia (Lawson, Cavanagh, Morgan, & Siriwardena, 2010).

Adjunct support

Patient characteristics and program features are not the only factors influencing completion rates. Almost 60% of users did not progress after Module 1 when they could

freely access an internet intervention for depression on the web (without support), whereas when the same intervention was delivered in a monitored setting (with support), this percentage dropped to less than 10% (Neil, Batterham, Christensen, Bennett, & Griffiths, 2009). Attrition rates in unsupported CCBT have been notoriously high. On average, less than 1% of users accessing unmonitored self-help packages on the internet complete treatment (Eysenbach, 2005). Unsupported CCBT achieved a 14% completion rate when delivered in primary care settings (de Graaf et al., 2009) and did not outperform treatment as usual (TAU) by General Practitioners without a special interest in mental health. Results were similar at 12-month follow-up (de Graaf et al., 2011). In contrast, brief support increased adherence to self-help interventions (Newman, Erickson, Przeworski, & Dzus, 2003).

Support

In a meta-analysis of 12 RCTs of CCBT packages for depression and anxiety, interventions with added support had larger mean effect sizes than interventions without (Spek, et al., 2007). Qualitative research confirmed that lack of support is a major barrier to CCBT patients completing treatment (Gerhards et al., 2011). However, when discussing adjunct support for CCBT, many different aspects should be taken into account (Marks et al, 2007). *Duration* of support varies widely, from systems requiring no human input (Christensen, Griffiths, & Korten, 2002; Clarke et al., 2002; Farvolden, et al., 2005) to programs requiring up to 14 hours of therapist's time per patient (Ruwaard et al., 2009); this resembles the level of involvement required in face-to-face therapy and thus saves no therapist's time. Patients accessing NICE-recommended CCBT for panic/phobia received 1-2 hours of support (Marks, et al., 2004; Schneider, et al., 2005). *Frequency* of support is also important. When CCBT is delivered in a clinic (on standalone computers), patients are usually seen briefly at the start and end of each appointment, while remote support for patients using CCBT on the internet is typically offered weekly or fortnightly (Schneider, et al., 2005). *Modes of contact* include face to face, phone, email, or SMS, and might be synchronous or asynchronous. An RCT showed better adherence and improvement with *scheduled* as opposed to *requested* on-demand support calls to the therapist which patients had to initiate (Kenwright, Marks, Graham, Franses, & Mataix-Cols, 2005). Further insights will hopefully be obtained from the results of an ongoing RCT comparing unsupported CCBT vs. CCBT + scheduled support vs. CCBT + support on demand vs. scheduled support only vs. no

intervention (for the trial's protocol, see Donker et al., 2009). *Content of support* can vary from just assisting the patient with incidental technical problems to more clinically-oriented support. In keeping with this, supporters may come from different *backgrounds*. A CCBT package for social phobia achieved similar effect sizes (1.5 vs. 1.3) and identical completion rates (79%) when supported by a *clinician*-moderated forum or by a *coach* (technician giving no clinical advice) giving short weekly calls to patients (Titov et al., 2009). What seems to be more important than the background of the supporting professional is the *nature* of the relationship between the patient using CCBT and the supporter. Accountability, bond and legitimacy have been proposed as important areas of future research in human support for eHealth interventions (Mohr, Cuijpers, & Lehman, 2011).

Recent studies yielded preliminary evidence for the efficacy of support requiring no human input. Self-guided CCBT for social phobia with the addition of highly-customised automatic emails improved the social phobia as much as did face-to-face therapy, while the control group receiving weekly phone calls from a coach (technician giving no clinical advice) achieved better completion rates and improved more than the self-guided group (Titov, Andrews, Choi, Schwencke, & Johnston, 2009). Recently, an ELIZA-type program was proposed for social anxiety in stuttering (Helgadottir, Menzies, Onslow, Packman, & O'Brian, 2009a, 2009b) where a virtual (non-human) therapist gave automatic feedback simulating guidance (see p.19). Further research will show whether the same encouraging findings apply to clinical problems other than social anxiety.

Clinical improvement

Asking if CCBT is effective is like asking whether drugs are effective (Marks, Cavanagh, & Gega, 2007a). A better question is whether CCBT works for a particular problem when it is delivered in a certain way with support in a specified manner for a specific length of time. Systematic reviews and meta-analyses (see p.22) found CCBT to be effective for a wide range of problems. Every year new research has shown the efficacy and the effectiveness of CCBT in RCTs and open trials. Studies evaluated CCBT against therapist-delivered CBT/exposure therapy (Marks, et al., 2004), manual-based CBT (Ghosh, Marks, & Carr, 1988), relaxation (Greist, et al., 2002) or waiting

list (Lintvedt et al., 2011). Effect sizes were between 0.2 (Kenardy, McCafferty, & Rosa, 2003) and 4.3 (Marks, et al., 2004) cited in (Marks, et al., 2007b).

In a recent systematic review of the impact of adherence on the effectiveness of e-Therapies (Donkin, et al., 2011) number of logins was most consistently related to outcomes in physical health treatments, while module completion was most related to outcomes in psychological health interventions. The authors, however, found a large variation in the reporting of adherence and the association of adherence with outcomes. CCBT programs might not need to be like "a course of antibiotics that must be completed to be effective" (van den Berg, Shapiro, Bickerstaffe, & Cavanagh, 2004, p.511). Some users might benefit even if they have not reached the end of the program.

Factors likely to impair patient's improvement include greater severity of disorder and of comorbidity (Andersson, Carlbring, & Grimund, 2008; L. F. Campbell & Smith, 2003; Nordgreen et al., 2010). Therapist's support time correlated strongly with better clinical outcome (Palmqvist, Carlbring, & Andersson, 2007). Finally, source of referrals predicted patients' outcome, with GP referrals having the best prognosis, followed by self-referrals and lastly by patients referred by mental health professionals (Mataix-Cols, Cameron, Gega, Kenwright, & Marks, 2006). As the authors acknowledge, this might be due to GP- and self-referrals being less severe and more motivated for change than are patients referred by mental health professionals.

Screening

Until a few years ago, a lack of specific screening tools for CCBT meant that suitability criteria for computer-aided interventions resembled those for face-to-face therapy. An offer of CCBT tended to depend on the type of problem, perhaps on the DSM-IV/ICD-10 diagnosis only. Accessing CCBT on the internet, however, calls for additional areas to be taken into account (e.g. access to the web and motivation to do self-help). In a qualitative study of internet-guided treatment for depression, people who were motivated to work on their own and had a structured way of working through the material were better bets for successful self-help (Bendelin et al., 2011).

Current IAPT services do the same screening for all patients regardless of which treatment option they will be offered. A full Minimum Data Set (mandatory questionnaires to be completed at every contact with a patient (Improving Access to

Psychological Therapies, 2011) can take 20-30 minutes to complete. Unduly long screening delays patients' access to help unnecessarily. Brief screening can direct patients to the most appropriate therapy quickly and efficiently. A single-item, self-reported scale to assess depressed mood correlated well (r=.71) with the 21-item Revised Beck Depression Inventory (McKenzie & Marks, 1999). Computer-aided screening can also help risk assessment. A computer interview was better than a clinician at predicting suicide risk (Greist et al., 1973). In an emergency department, suicidal plans were disclosed to a computer by 31 patients, 25 of whom were undetected in a face-to-face consultation (Claassen & Larkin, 2005).

A self-report questionnaire to screen for anxiety and depression was developed by Gega et al (2005). Building on this preliminary work, Donker et al (2009) validated a 15-item web questionnaire to screen for a wide array of common mental health disorders (depressive disorder, alcohol abuse/dependence, generalised anxiety, post-traumatic stress disorder, social phobia, panic disorder, agoraphobia, specific phobia and obsessive compulsive disorders). Their questionnaire takes only 2 minutes to complete. Its specificity and sensitivity were good, especially for social phobia, panic disorder with agoraphobia, agoraphobia, OCD, and alcohol abuse/dependence. The same authors recently validated web-based tools to screen suitability for web-based self-help for depression (Donker, van Straten, Marks, & Cuijpers, 2010) and general anxiety (Donker, van Straten, Marks, & Cuijpers, 2011).

A theoretical framework for the study of diffusion of innovations in health care organisations

Dissemination is high on the agenda in the UK (Cooksey, 2006) and internationally (World Health Organization, 2004). Recently, the US National Institute for Mental Health gave priority to research into the successful implementation of effective interventions (Proctor, et al., 2009). Suitable methods are needed to produce results valuable to policy makers. Though RCTs are considered the "gold standard" in clinical research, other kinds of evidence are needed when a treatment is implemented in routine care (Obstfelder, Engeseth, & Wynn, 2007). Improving clinical evidence differs from improving process of care (Berwick, 2008). Naturalistic studies can add value even to the most rigorous meta-analyses (Marks et al., 2009) and internal validity should not be the only parameter against which success is measured (Glasgow, 2008). In particular,

there is a need to use routinely-available outcome data to complement results obtained in RCTs (Lewsey, Leyland, Murray, & Boddy, 2000) and computer-aided ratings make it easier to collect such data (Marks, 1998). Absence of outcome data about local practices makes it hard to evaluate the success of program implementation (Feldstein & Glasgow, 2008) - studying the adoption of an innovation is a complex process and it should not be studied as a discrete event (Robert, Greenhalgh, Macfarlane, & Peacock, 2009).

As well as suitable methods, a suitable theoretical framework is needed to evaluate a complex intervention's implementation in routine settings. Several general models have been presented which overlap to varying degrees[4]. A recent review identified 13 frameworks for use by researchers into dissemination (Wilson, Petticrew, Calnan, & Nazareth, 2010). Some dissemination models were developed in the context of public health (Glasgow, et al., 1999), while others were conceived in non-medical settings (manufacturing) and then applied to health care (Helfrich, Weiner, McKinney, & Minasian, 2007). In some circumstances dissemination frameworks were applied to specific problems such as heart health (Elliott et al., 2003), tobacco control (L. W. Green et al., 2006) and physical activity interventions (Owen, Glanz, Sallis, & Kelder, 2006). One major difference contrasts 'pipeline' with 'multi-level' implementation models (Proctor, et al., 2009): pipeline models show a sequence of events where A precedes B and B precedes C with no overlap between them (Addis, 2002), while multi-level models are more flexible with interacting levels. This distinction need not be absolute – implementation may involve successive phases with parallel processes interacting during some of these phases.

For this dissertation, the model chosen to guide the research was that of Greenhalgh, Robert, Bate, et al. (2005). This model was selected because of its evidence base and derivation from the classic *diffusion of innovations* paradigm, which is considered a suitable theoretical basis for this study. Greenhalgh et al's model also includes important aspects from other research traditions (e.g. management). The model will be supplemented with specific variables drawn from the CCBT literature or with relevant

[4] See Glasgow, Vogt, & Boles (1999), Dobbins, Ciliska, Cockerill, Barnsley, & DiCenso (2002), Shortell, (2004), Fixsen, Naoom, Blase, Friedman, & Wallace (2005), Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou (2005), Feldstein & Glasgow (2008), Kitson et al. (2008), Proctor, et al., (2009), Aarons, Hurlburt, & Horwitz (2010).

categories (e.g., coaching) discussed more in detail in other implementation models (Fixsen, et al., 2005). A final reason for choosing this framework was its specific focus on diffusion of innovations in health care organisations.

Based on Rogers' seminal work on diffusion of innovations (Rogers, 2003), Greenhalgh et al reviewed an extensive literature using a *meta-narrative* approach (Greenhalgh et al., 2005). As reported by the authors, previous attempts at reviewing this fragmented (and often messy) literature have been described by other scholars as a 'conceptual cartographer's nightmare' (p.2). The review identified 13 main research traditions contributing to the diffusion of innovations in health service organisations:

1. *Rural sociology* (the discipline from which Everett Rogers developed his highly-influential diffusion of innovations theory)
2. *Medical sociology* (a research tradition using similar approaches to the rural sociology studies but focusing on the clinical behaviour of doctors and the networks in which they operate)
3. *Communication studies* (in which the innovation involves the communication of new information between a sender and a receiver – the focus is thus on analysing by whom this information is transmitted, how it is conveyed and who is the receiver)
4. *Marketing and economics* (the innovation is viewed as a product or a service to be marketed and decision to adopt is based mainly on a cost-benefit analysis)
5. *Development studies* (exploring the political and ideological influences on the contexts in which the innovation is adopted, and on the different meanings attributed to it in different contexts, as well as between the change agency and the organisation assimilating the innovation)
6. *Health promotion* (studying innovations focused on promoting healthy behaviours, e.g. smoking cessation)
7. *Evidence-based medicine and guideline implementation* (addressing healthcare technologies and procedures for which there is a strong evidence base – this tradition follows a rationalist approach and the main focus is on changing the behaviour of the adopters in light of published evidence)
8. *Structural determinants of organisational innovativeness* (the studies focusing on organisational – rather than individual – variables influencing the probability that an organisation will adopt innovations)

9. *Studies of organisational process, context and culture* (exploring the impact of 'softer' organisational variables – e.g. leadership style and power balances – on the probability that an innovation will be adopted, assimilated and routinised)
10. *Inter-organisational studies* (studying the influence that external organisations have on the one adopting the innovation, and how different organisation are networked)
11. *Knowledge-based approaches to innovation in organisations* (focusing on how the knowledge surrounding the innovation and the adoption process is constructed and distributed)
12. *Narrative organisational studies* (investigating how the individual 'narratives' about the innovation are shared within the organisation assimilating the innovation)
13. *Complexity studies* (exploring the complex patterns of ongoing interactions by which organisations adapt in response to the innovation)

This vast body of literature comprising more than 1,000 studies was combined into a unifying conceptual model consisting of 9 dimensions, outlined in Table 1-2.

Table 1-2. Greenhalgh et al's (2005) conceptual model

	Name	Description
1	Innovation	Key attributes of innovations which explain a high proportion of the variance in adoption
2	Adoption	Key attributes of the individual adopters which explain a high proportion of the variance in adoption
3	Assimilation	Processes by which an innovation is adopted by an organisation
4	Communication and influence	Influences that promote the spread of innovation lie on a continuum between Diffusion (unplanned) and Dissemination (planned)
5	Inner context (i): System antecedents for innovation	Some pre-existing features of organizations (both structural and "cultural") influence the likelihood that an innovation will be successfully assimilated
6	Inner context (ii): System readiness for innovation	An organization may be amenable to innovation in general but not ready or willing to assimilate a particular innovation
7	Outer context	An organisation's decision to adopt an innovation depend on a number of external influences
8	Implementation process	The early usage activities that often follow the adoption decision
9	Linkage	Building strong links between the Adopter Organisation and the Change Agency

Innovation

The diffusion of innovations literature has proposed a set of characteristics of the innovations (as perceived by the potential adopters) which can facilitate adoption. *Relative advantage* is probably the most important attribute in this group - innovations that have a clear advantage for the prospective adopter are more likely to be assimilated. It is considered a necessary but not sufficient condition for adoption. Other attributes of the innovation which can explain a high proportion of variance in adoption rates are *compatibility* (the innovation needs to be compatible with the values, norms and needs of the adopter and the organisation in which the adopter operates), *low complexity* (innovations perceived as easy to use will be more likely picked up), and *trialability* (innovations that can be piloted on a small scale before full-scale implementation are more likely to be adopted). Further aspects highlighted as important are the

observability of the benefits of the proposed innovation (they should be clearly visible), possibility for *reinvention* (the adopter should feel they have a chance to change the innovation and adapt it to their needs) and *low risk* (an innovation carrying a high degree of risk is unlikely to be adopted). Final attributes in this category are *task issues* (if an innovation is perceived to be relevant to the adopter's task – "this is something that a person in my role should do" – then assimilation is more likely), *nature of knowledge required* (adoption is eased when an innovation requires explicit knowledge which can be codified, as opposed to tacit knowledge) and availability *support* (often offered by the change agency) on how to use the innovation.

Adoption

Besides the characteristics of the innovation, early diffusion research has highlighted the traits of potential adopters as important factors that can facilitate assimilation. For instance, in Ryan & Gross' (1943) classic study of the adoption of hybrid corn in Iowa, adopters were richer, better educated and more cosmopolitan than non-adopters. Innovations are not self-implementing; the people using these innovations think about them, develop feelings about them and discuss them with colleagues. The *motivation* of adopters is an important factor. Put simply, it is unlikely that those who are not motivated to use an adoption will ultimately decide to use it. The innovation must address their *needs* and fit with their pre-existing *values and goals*. It must also align to the *skills* they already possess and their *learning style*. Finally, adoption is facilitated if the innovation is already in use in the *social networks* frequented by the potential adopter.

Assimilation

While the term 'adoption' has been mainly used in the diffusion literature to denote the individual's decision to embrace an innovation, organisational acceptance is often referred to as 'assimilation'. The process by which organisations routinised an innovation is *complex* and usually follows a *non-linear* path. The assimilation process in organisations is often studded with pauses, setbacks and unexpected events, which disrupt the steady progression from initial persuasion to adopt the innovation to the final stage of routinisation.

Communication and influence

The communication processes around the innovation can substantially influence its chances of adoption. While diffusion implies a more passive strategy for the spread of an innovation, dissemination (and, even more, implementation) requires active efforts directed at the intended adopters to persuade them to embrace the innovation in question. Interpersonal influence is a key aspect. Adoption is more likely if recognised *opinion leaders* support the innovation, in particular if they are perceived as *homophilous* (similar in terms of socio-economic, educational, professional and cultural background with current users of the innovation). *Peers* can also influence likelihood of adoption, and *champions* within the organisation backing the innovation can have an important role in facilitating adoption. *Change agents*, on the other hand, are individuals external to the adopting organisation who tries to influence adopters in a direction considered desirable by the change agency (often the commercial organisation introducing the innovation in the market). As for opinion leaders, change agents will be more credible if perceived homophilous. Often change agents engage in *marketing* activities directed at prospective adopters. However, while marketing is important for generating awareness, evidence shows that interpersonal channels are more important in persuading potential adopters.

Inner context (i): System antecedents for innovation

Initial studies on the diffusion of innovations focused mainly on adoption by individuals and tended to ignore the wider organisational context and the historical, political, cultural and ideological aspects of the innovation introduced. Much of the early research exhibited ‘pro-innovation’ and ‘individual-blame’ biases (Rogers, 2003). The innovation on which the study focused was normally considered ‘good’ and worth of adoption. If it was not adopted, the non-adopting individual was held responsible, rather than exploring the wider context in which this individual operated and how knowledge about the innovation was constructed within these contexts. Non-adoption was an understudied area and the innovation tended to be viewed as having ‘fixed’ properties, largely independent of the influences that adopting organisations could exert on them. The lessons learnt studying an innovation in one context were thought to apply seamlessly to another setting.

Subsequent diffusion research began to address the characteristics of the systems within which innovations were implemented. System antecedents for innovations capture the pre-existing, structural factors in the organisation influencing adoption and sustainability of the innovation. *Structural aspects* were found to be influence how much a system was ready to embrace innovations. For example, the size of an organisation was related to innovativeness (big organisations tend to innovate more). Innovative organisations also display an *absorptive capacity for new knowledge* (meaning they are able to incorporate new information an link them successfully with the pre-existing knowledge) and they offer a *receptive context for change* (leaders have a clear vision, set goals and priorities and there is a risk taking climate which encourages experimentation with new ways of working).

Inner context (ii): System readiness for innovation

Although certain organisations might have the right mix of pre-existing structural factors favouring innovation, they might not be ready to adopt a particular innovation at a specific time. *Tension for change* is an essential condition for adoption in a particular moment in time – if the organisation feels the current status quo is intolerable, adoption of new practices is more likely. *Power balances* will likely start to play a role, with supporters of the innovation challenging its opponents, and the outcome of such contraposition being likely determined by the number and the role within the hierarchy of the members in each camp. For successful adoption, there also need to be a good *innovation-system fit*, i.e. the innovation needs to be compatible with the existing norms and procedures of the organisation. Highly disruptive innovations are less likely to be considered. *Implications need to be assessed* before proceeding with implementation, so that *dedicated time and resources* can be made available to ensure a successful assimilation.

Outer context

External influences can significantly impact on the chances that an innovation will be adopted. *Inter-organisational networks* provide norm setting for an organisation contemplating adoption of a particular innovation, and if a certain threshold of comparable sites have already adopted it, assimilation is more likely. *Political directives*

can also play an important role, by providing 'push' factors through policy directives which can kick-start adoption processes, although such policies on their own do not increase organisational capacity so they are unlikely to facilitate sustainability after the initial adoption stage.

Implementation process

Once an organisation has decided to adopt an innovation, the implementation process begins and it is often a non-linear process (as discussed above with regard to the 'assimilation' dimension). A *flexible and adaptive* organisation will be more likely to make the changes needed to accommodate the innovation. Such changes will likely be quicker if the *decision-making* is devolved to *front-line staff*, so that decisions can be taken without the need to consult senior management each time. *Supportive managers* (both at the top and middle level) as well as *involved and motivated practitioners* are essential to increase the chances of a successful implementation, and there must be good *intra-organisational communication* between the different levels of the organisation. Dedicated and ongoing *funding* is also important to avoid financial barriers jeopardising implementation. Finally, *feedback* on whether implementation milestones are being achieved and *potential for reinvention* (similar to the innovation's attribute described above, but in this case related to the setting in which it is being implemented) are important aspects facilitating the implementation process.

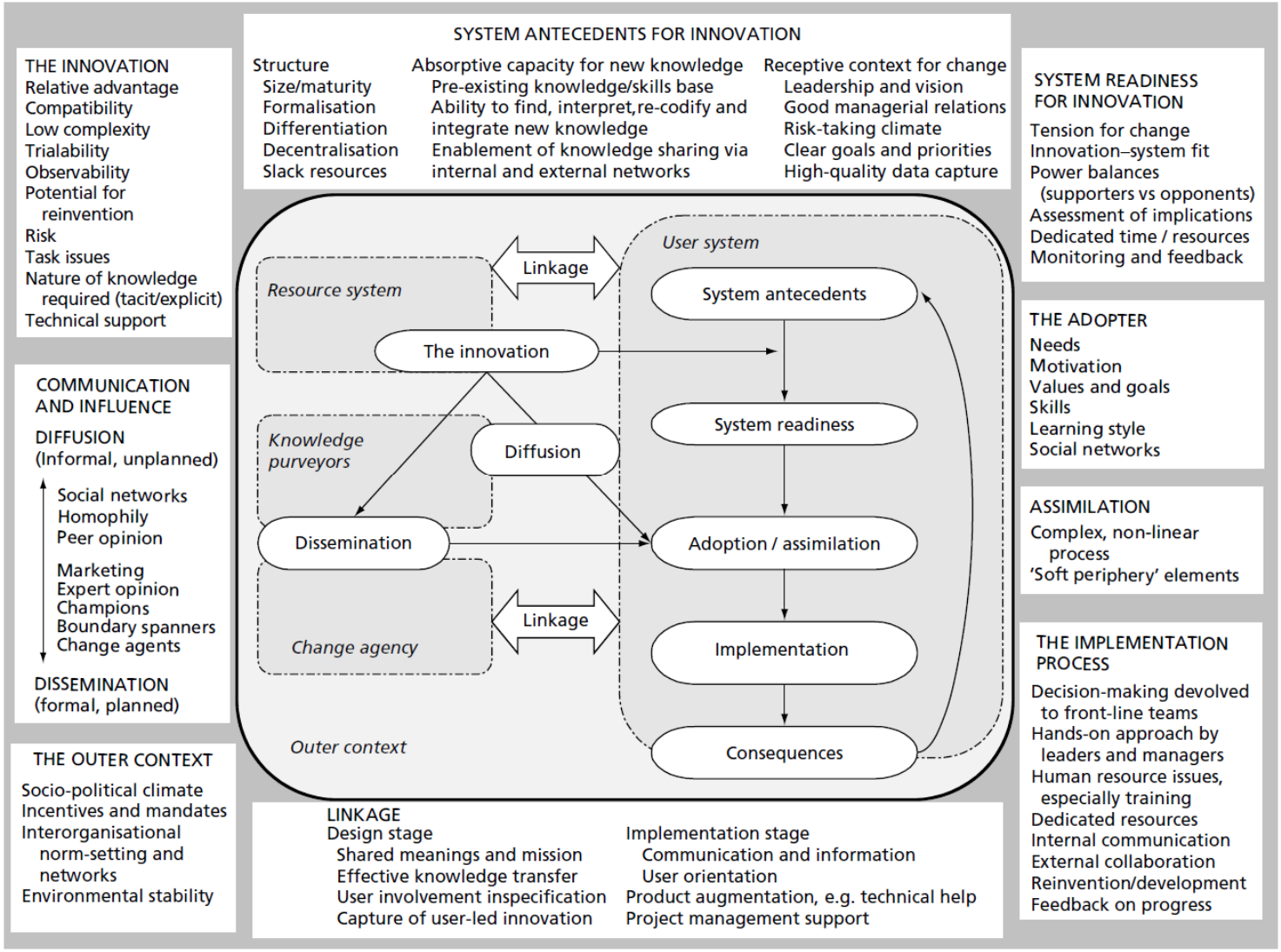
Linkage

Establishing strong links between the resource system (the 'seller' of the innovation) and the adopters is essential in ensuring successful routinisation. Such links can occur at the *design stage* (when the innovation is being developed) or at the implementation stage (when the innovation has been developed and it is ready to be implemented). If the developers involve the adopting organisation at the design stage by capturing their *specifications* and understanding their *vision* for how the innovation is to be used, successful assimilation is more likely. Similarly, good *human relationships* and *communication* between the change agency and the adopters during the implementation stage increase the likelihood of successful assimilation. The change agency should also offer *support* during implementation, which is particularly important in the case of

technology-based innovations, as they often require augmentation (e.g. technical help) before they can be successfully used. A further characteristic of change agents (the professionals working for the change agency) which facilitates adoption is their perceived *homophily* – if they are considered similar to the adopters in terms of professional status, assimilation is more likely.

A word of caution is needed to illustrate how the model should be used. Greenhalgh and colleagues (2005) strongly argue against a formulaic, 'checklist' approach. Individual factors should not be studied in isolation without considering how they interact with each other over time. Researchers using this model should not assume simple causal relationships between its different components. When implementing complex, technology-based innovations, there is no easy recipe for success. The authors of the model concluded that there are no stable factors which can, in a deterministic way, predict adoption. Different components of the model interact dynamically over time. The model is thus not predictive. While the fortunes of an innovation in different contexts can be explained with reference to the model, these fortunes cannot be predicted at the outset, nor are there any magic 'levers' which can be pulled to ensure success in any given setting where the innovation is implemented. Throughout this dissertation, this model is thus not used in a prescriptive fashion. It should rather be seen as "illuminating the problem and raising areas to consider", not "providing the definitive answers" (Greenhalgh, et al., 2005, p.220). Each of the 9 categories groups together relevant items across the studies reviewed by the authors. The final model is portrayed in Figure 1-1. For a glossary defining each item see p.235).

Figure 1-1. Conceptual model for the spread and sustainability of innovations in service delivery and organisations(reprinted from Greenhalgh et al., 2005 with permission – Copyright held by Milbank Memorial Fund)



Literature on complex, technology-based innovations

The initial diffusion research focused mainly on simple innovations which were taken up by individual adopters. For example, the above mentioned study by Ryan & Gross (1943) on the adoption of hybrid corn in Iowa focused on single farmers. Adoption was conceptualised as a linear sequence of steps (knowledge, persuasion, decision, implementation and confirmation; Rogers, 2003) and organisational factors were largely ignored.

By contrast, more recent diffusion studies have focused on complex, technology-based innovations. 'Complex, technology-based innovations' are interventions with an IT component which are implemented in organisational settings where multiple adopters interact with the innovation. The process of adopting such innovations thus involves a long series of decisions (often made by actors holding different perspectives) rather than a simple process of adoption vs. non-adoption with a binary outcome. Technological innovations in medicine have a long history. Early implementations of telemedicine applications were often plagued by high costs and sustainability issues (Wootton, Yellowlees, & McLaren, 2003). However, costs have fallen in recent years and the pervasive diffusion of sophisticated equipment (e.g. smartphones) makes telemedicine a particularly attractive option for policy-makers looking to widen access and increase the cost-effectiveness of the care being delivered.

Technology is often viewed rather uncritically as 'scientific', assuming that the implementation of technological innovations won't arouse any 'feelings' or 'beliefs' toward the technology itself. However, the literature on the adoption of complex, technology-based innovations highlights the importance of the *meaning* that potential adopters attribute to the innovation, and the ways in which this meaning is constructed and shared within a group of professionals (Whitten, Holtz, & Nazione, 2009). Complex IT systems are not fixed entities which bear the same meaning irrespective of the context in which they are implemented. The features of an IT system, for example, can have very different meanings for the inventors of the system and for those adopting it. Often innovations in telemedicine are introduced by a company with a commercial interest and by doctors who are keen on some of the technological aspects. For them the benefit is self-evident, but not all colleagues might share the same opinion. It is therefore important to address the 'sense-making' dimension (i.e. the social process of establishing the meaning of events and experiences; Weick, 1995, cited in Kitzmiller,

2012) when implementing complex innovations. The successful implementation of technology-based innovations depends on the interplay between technical and social factors (Obstfelder, et al., 2007).

Some authors highlighted political and power issues which emerge during the adoption of technological innovations (Timmons, 2001; Boddy, et al., 2009; Denis, et al., 2002). The diffusion of an innovation is a social and political process influenced by the risk/benefit considerations of multiple actors who have varying degrees of power within relevant organisations. The assimilation process is driven by 'micro-political' organisational decisions, which are constantly renegotiated between different groups of adopters. Some groups of professionals might feel as if the innovation is being imposed on them by colleagues higher in the organisational hierarchy. The introduction of a new technological innovation sometimes leads to open conflict within the organisation. Timmons (2001) reminds us that "managers have the power to 'implement' the system [...but] staff have power to resist the implementation of the systems" (p.221).

Such resistance can be overt or covert. In some cases, a group of professionals can deliberately decide to 'wreck the ship'. Sicotte and colleagues (1998) describe the implementation of a Computerised Patient Record (CPR) system in four US hospitals. For the developers, the CPR had clear advantages: instant communication between professionals, de-localisation (access from remote locations) and automation of work processes. The project's ambitious aim was to make the hospitals paperless. However, the CPR proved to have an inflexible structure and the implementation process was driven more by the needs of the developers than of the adopters. Despite having been designed to speed up care processes, the CPR ended up increasing the workload of clinicians and they ultimately boycotted the system.

Unlike Sicotte et al (1998), Timmons (2001) reports few occurrences of open sabotage by nurses of a newly-introduced IT system to produce detailed care plans for patients. Instead, more subtle ways of resisting it were common, whether by using professional rhetoric ('putting patients first') or by conscious inaction (e.g. letting one's password expire or failing to report a system's fault). Most nurses 'worked round' the system, by carrying out the activities they knew would be monitored (e.g. creating a care plan for a patient within a specified time limit after admission) but ignoring other aspects of the IT system (e.g. whether the care had been evaluated). Nurses perceived using the IT system as 'doing paperwork' and subtracting time from hands-on care with patient, which is a

core concept in nurse training. Use of the system was mainly confined during 'quiet afternoons' or nights rather than becoming an integral part of the daily routine as the developers of the system had envisaged.

The two studies mentioned above are examples of how an IT innovation developed with a precise scope by its proponents ended up being boycotted or used in a very different way due to the social negotiation which occurred when the innovation was implemented in routine practice. Boddy and colleagues (2009) investigated which contextual and process variables influenced implementation of a range of eHealth projects. From their 18 semi-structured interviews, the authors identified features from the *external* context (increasingly IT-literate adopters who were critical of inefficient paper systems, divergent opinions between different professional groups about the security of patient data, and ambiguity about the perceived cost-effectiveness of e-health), as well as dimensions related to the *internal* context (strategy, structure, culture, working processes and people). Process issues were also reported, mainly around planning and flexibility, participation, and power. The authors concluded that when introducing a new eHealth system, it is essential to match the cultural values of the professionals using it. In keeping with this, "system based on the needs of health care professional" was one of the conditions identified by Gagnon and colleagues (2006) for successful telehealth implementation. As one of the interviewee in this study put it, "the system must adapt to my practice and not vice-versa" (p.6).

Murray et al (2011) interviewed 23 senior managers and other staff responsible for implementing eHealth initiatives across a wide range of healthcare contexts (primary, secondary, and community care). The interviews were analysed using Normalisation Process Theory (NPT; May & Finch, 2009). The authors found that innovations were more likely to be assimilated ('normalised', according to the NPT) where they facilitated interactions between different groups of professionals, between patients and clinicians, and where they fitted well with organisational goals and skill sets of existing staff.

In sum, the implementation of complex, technology-based innovations is not a matter of simply introducing a piece of hardware (or software, as is the case in this study) into an organisation. It is essential to understand how people interact with the technology. For adopters, it is important to not only 'know what' but also to 'know how' (Attewell, 1992). To be successful, the implementation of technology products needs

augmentation from the change agency, in terms of troubleshooting of problems where those appear and its encouragement of regular and repeated use of the innovative system.

FearFighter™ and its implementation in the NHS

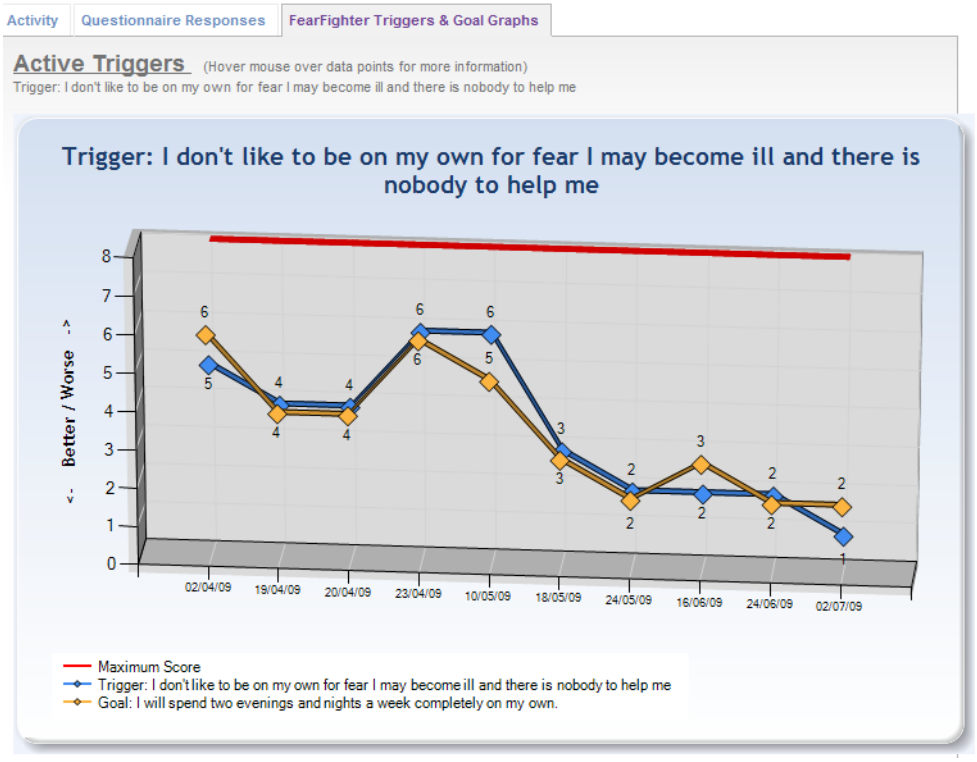
FearFighter™

FearFighter™ (*FF;* www.fearfighter.com) is an internet-delivered, interactive CCBT package for panic and phobia developed by Professor Isaac Marks at the Maudsley hospital and marketed by CCBT Ltd. NICE recommended *FF* as "an option for delivering CBT in the management of panic and phobia" (National Institute for Clinical Excellence, 2006, p.5). *FF* is indicated for DSM-IV 300.2x diagnostic codes (300.21 Panic Disorder with Agoraphobia, 300.22 Agoraphobia without history of Panic Disorder, 300.23 Social Phobia, and 300.29 Specific Phobia; American Psychiatric Association, 2000). Recently, NICE clinical guideline 113 (National Institute for Clinical Excellence, 2011) specified that *FF* is not indicated for Panic Disorder *without* agoraphobia, which is far less common than Panic Disorder *with* Agoraphobia. *FF* uses text, graphics and animations, gives individualised feedback to the patient based on the user's input, and assumes a reading age of 11. Until 2nd December 2009, the Fear Questionnaire (FQ; Marks & Mathews, 1979), the Work and Social Adjustment Scale (WSAS; Mundt, Marks, Shear, & Greist, 2002) and Trigger and Goal ratings (Marks, 1986) were the only outcome measures embedded within *FF*. Thereafter, the FQ was replaced by the PHQ-9 (Kroenke, Spitzer, & Williams, 2001), GAD-7 (Spitzer, Kroenke, Williams, & Lowe, 2006), and IAPT Phobia Scale (Improving Access to Psychological Therapies, 2011) to yield IAPT compliance. Every 3 weeks *FF* monitors clinical progress by giving questionnaires and suicide-risk questions.

Figure 1-2. FearFighterTM (*FF*) version 1.5

FF comes with a password-protected Patient Progress Monitoring System (*PPMS*) which trained professionals can access to support patients. The *PPMS* does not store patients' personal details, instead identifying users by an anonymous username (e.g. MYPCT00123). The *PPMS* collects information about the number of patients starting *FF*, which step they have reached and when, and their answers to questionnaires.

Figure 1-3. Patient Progress Monitoring System (*PPMS*) – Trigger and Goal graphs



FF is a 9-step program. Patients are guided through the steps in a sequential way (they cannot skip modules).

Table 1-3 shows an overview of each step.

Table 1-3. *FF*'s 9 steps

Name of the step	Description
1. Getting started	Welcomes patients to *FF* and makes an initial assessment.
2. How to beat fear	Introduces patients to CBT model via case studies. Instructs users to keep a daily diary of situations they fear/avoid.
3. Problem sorting	Helps patients identify triggers for their fear and avoidance, encourages users to customise triggers and to rate them on a 0-8 scale.
4. How to get a helper	Explains the rationale of finding a co-therapist and gives suggestions on how to find one.
5. Setting goals	Guides patients through the process of setting SMART (*specific, manageable, achievable, relevant, timed*) goals. Users can rate these on a 0-8 scale.
6. Managing anxiety	Illustrates coping techniques to manage anxiety when doing exposure therapy.
7. Rehearsing goals	Reviews material covered so far, looks at common thinking errors, and lets users practise *imaginal* exposure.
8. Carrying on	Asks users to re-rate their triggers and goals after having carried out *live* exposure.
9. Troubleshooting	Offers practical help in dealing with common problems encountered during exposure.

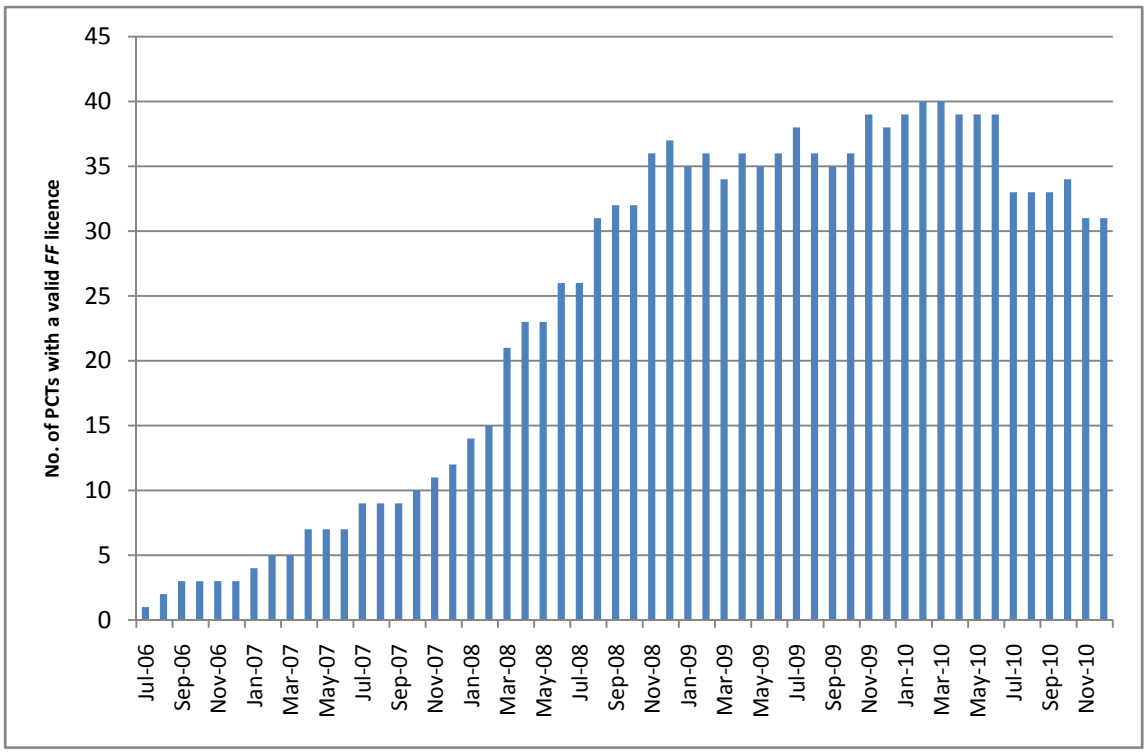
Several versions of *FF* have been released over the years. The *precursor* version of *FF* (accessed at a clinic with face-to-face support) was effective in an RCT when compared with clinician-guided exposure and the self-help book *Living with Fear* (Ghosh, et al., 1988). *Stand-alone FF* was clinically efficacious in open studies (Hayward, MacGregor, Peck, & Wilkes, 2007; Kenwright, et al., 2001; Shaw, Marks, & Toole, 1999) and in an RCT (Marks, et al., 2004), and was cost-effective (McCrone, et al., 2009). *Internet-based FF* (the version implemented in the NHS and investigated in this study) was tested for clinical efficacy in an open study first (Kenwright, Marks, Gega, & Mataix-Cols, 2004) and then in an RCT (Schneider, et al., 2005). Effect sizes ranged from 0.4 to 1.8 across different measures. Independent investigators found *FF* to be acceptable

when delivered on the internet in remote and rural areas of Scotland (MacGregor, et al., 2009). A further version (*FF educational*) was developed to teach the principles of exposure therapy to students, and was as good as traditional teaching in RCTs with medical (McDonough & Marks, 2002) and nursing (Gega, Norman, & Marks, 2007) students.

The implementation process

After NICE recommended it (National Institute for Clinical Excellence, 2006), *FF* was adopted by Primary Care Trusts (PCTs) across England. From January 2006 to December 2010, 61 out of 145 PCTs purchased *FF* licences for their catchment areas, which means suitable patients from a total population of about 20 million could be prescribed *FF* on the NHS free of charge. Figure 1-4 shows the S-shaped curve of *FF* adoption in the NHS over time.

Figure 1-4. Adoption of *FF* in PCTs across England



The Mental Health Commissioner in each PCT decided to purchase licences for *FF*, how many (one licence = use by one patient), and over what period of time. Once licences had been bought, the PCT's and CCBT Ltd's respective implementation teams had a *planning meeting*. The PCT's implementation team usually consisted of the Service Manager and/or Clinical Lead of the Service Provider commissioned by the

PCT to deliver *FF*. Other senior members of staff were present if needed. CCBT Ltd's implementation team comprised the Implementation Manager and, occasionally, a sales representative or a Nurse Advisor (NA; company staff supporting the implementation of *FF* in the NHS). The scope of the planning meeting was to agree the clinical and operational details of *FF*'s delivery within the service. Roles and responsibilities were identified and milestones and deliverables agreed. Soon after the planning meeting, the Implementation Manager or a NA held a 3-hour *training session* with the Service Provider's staff responsible for screening and supporting *FF* patients. Each trainee was issued with training materials and with a login to go through *FF* as a stooge patient. This was an integral part of the training and it was especially important for staff who could not attend the face-to-face training session, as research found that computer-delivered instruction for exposure therapy led to similar improvement in knowledge and skills as tutor-delivered instruction (Gega, et al., 2007). An additional login was issued for trainees to access the Patient Progress Monitoring System (*PPMS*) in order to monitor patients' progress. After the training, the *FF* service went live. Depending on the requests of the PCT, the NA would usually *visit GP surgeries* in the area to raise GPs' awareness of *FF*'s availability in their area and to suggest appropriate ways to refer patients. Three months after the live date, the NA met again with support staff in a *workshop*. The workshop (unlike the training session) was a hands-on meeting which did not use a predefined set of materials but was mainly driven by attendees' questions. The NA answered supporters' queries and showed them how to overcome practical problems (e.g. how to introduce a patient to *FF*). Three months after the live date and every quarter thereafter, the Implementation Manager met with the Service Manager/Clinical Lead for a *service review* meeting, to discuss usage data and review progress against predefined milestones.

Summary of literature review

The literature reviewed for this dissertation shows that CCBT is a maturing field and that, like any other technology-based innovation, it is essential to understand how adopters of CCBT perceive it. Although few studies have investigated patients' uptake of CCBT, available evidence indicates that positive attitudes among clinicians can markedly influence the uptake of CCBT among patients. Therapists seemed to be more negative about CCBT than were patients and most clinicians expressed the need for

more information and training before they could begin using CCBT with patients. Unsupported CCBT is associated with many drop-outs, while brief human support increases adherence to CCBT. Different aspects of how support is offered to CCBT patients should be taken into account (e.g., duration, frequency, modes of contact, background of supporter, scheduled vs. on-demand support calls). Patients tend to improve less with CCBT if their disorder is more severe and if they have comorbidity along with their panic, phobia and/or OCD, so screening of their suitability is important to ensure that they have been assigned to use an appropriate CCBT program.

Unanswered questions

Several studies conducted in the UK have investigated the effectiveness of CCBT in "real-life" conditions (Cavanagh, Seccombe, & Lidbetter, 2011; Learmonth & Rai, 2008; Marks, et al., 2003). Knight (2008) evaluated *BtB* service models in 6 NHS and third sector organisations in the North West of England and highlighted the importance of facilitating organisational cultural change, addressing practical issues that could cause problems during implementation, gaining staff's buy-in, and the need to raise awareness. However, the topic of *national* implementation of CCBT still lags behind. A handful of papers have started exploring the widespread dissemination of CCBT, pointing to it as an important topic (Titov, Andrews, & Sachdev, 2010) or discussing it from a theoretical point of view (Andersson, et al., 2009). Andersson et al (*ibid.*) raise key questions: when a CCBT intervention is ready to be widely disseminated (issue also addressed by Christensen & Griffiths, 2007), the best ways to disseminate and how to assess training needs. However, no study was found measuring which therapist/organisational variables affect CCBT's outcomes when it is delivered nationally in uncontrolled settings with alternative interventions, by non-research staff for whom CCBT is just one of many duties. The implementers of new eHealth initiatives are an understudied group (Murray et al., 2011) and evidence on them is needed to support one of the many possible implementation strategies. Research is needed on implementation models to facilitate the development of standards for efficient CCBT dissemination (Andersson & Cuijpers, 2008).

Hypotheses

The literature reviewed in this chapter suggests four areas that may be associated with more patients using CCBT, more patients completing it, and better clinical outcome. However, the findings from the literature are mainly drawn from RCTs or small-scale effectiveness studies. It is unknown to what extent they apply to national implementation in routine settings.

Publicising the availability of CCBT

'Marketing' (promotion, publicity) is a key factor in the "communication and influence" dimension of Greenhalgh et al (2005). The present study focuses in particular on the role of the 'change agent' (p.130) "who influences clients' innovation-decisions in a direction deemed desirable by a change agency" (Rogers, 2003, p.27). In this context, the change agency is the company marketing CCBT (CCBT Ltd), while the change agents are the company's staff who try to spread awareness of CCBT's availability for the PCT's patients by visiting GP surgeries to promote the new service. GPs are the main referrers into the services delivering *FF* in the NHS; increasing GPs' awareness about *FF* could potentially make practitioners more likely to recommend it and this could lead to increased use of the program. Previous educational programmes aimed at increasing GPs' knowledge about depression (Rutz, et al., 1992) significantly increased practitioners' competence in treating and preventing depressive disorders, although the effects tailed off 3 years later. With regard to educational visits to GPs aimed at changing prescribing behaviour, the results are mixed. Some reports found that untargeted outreach visits by pharmaceutical advisers did not change GPs' prescribing behaviour (Eccles, Steen, Whitty, & Hall, 2007; Hall, Eccles, Barton, Steen, & Campbell, 2001), though other studies found value from the use of educational visits by community pharmacists in small practices (Freemantle et al., 2002).

Training & coaching

The importance of training adopters to use the innovation is listed as a 'human resource issue' in the "implementation process" dimension of Greenhalgh et al (2005). Passive dissemination of information alone is seldom effective in changing adopters' behaviour. In his synthesis of the implementation literature, Fixsen et al. (2005) emphasise the

importance of training, defined as "imparting knowledge, skills, and abilities" about the innovation (p.39). Effective training includes transmission of knowledge, demonstration of the program, and opportunities to practise key skills within the training session. Role plays are frequently used too. In addition to initial training, further hands-on support is important to facilitate the adoption of a new intervention. Fixsen et al. (2005) therefore distinguish between *pre-service training* (teaching future adopters how to use the new intervention) and *coaching* (supervised practice 'on the job' in using the new intervention with real patients). Both pre-service training and coaching are essential, as a "train-and-hope" approach (Stokes & Baer, 1977) does not seem to work (Fixsen et al, 2005, p.40). Formal knowledge (*episteme*) needs to be complemented by practical wisdom (*phronesis*; Spouse, 2001). Newly-learnt behaviours need to be consolidated. Ideally, the same professionals who deliver the training should also conduct the coaching sessions, so that the relationships already established during training can facilitate learning during subsequent coaching sessions.

Complex, technology-based innovations need augmentation by change agents (Attewell, 1992). Previous CCBT studies reported findings in line with that. Norwegian clinical psychologists who had not yet used CCBT with patients expressed the need for more training before using this intervention modality (Nordgreen & Havik, 2011). Similarly, clinicians responding to an online questionnaire investigating the acceptability of online interventions in Australia said they needed to learn more about the efficacy and effectiveness of CCBT programs (Gun, Titov, & Andrews, 2011).

Brief support of CCBT users

The CCBT literature reviewed on p.31 points to the importance of patient support in reducing attrition rates. When briefly supported by phone, the completion rates of patients doing CCBT resembled those with usual CBT (Carlbring, et al., 2007). In keeping with this, high attrition occurred among unsupported CCBT users (Christensen, Griffiths, Korten, Brittliffe, & Groves, 2004; de Graaf, et al., 2009; Farvolden, et al., 2005; Neil, et al., 2009). However, little is known about the type of support (e.g. duration, frequency, modes of contact, scheduled vs on-demand) and how this relates to completion rates by users, especially when CCBT is delivered in routine care.

Users of *FF* usually require about 1 to 2 hours in all of patient support over 3 months. Pre-service training and coaching are given to promote high-quality support which can be integrated easily into current procedures. If there is no training and coaching an innovation is likely to be discontinued soon after its initial introduction (Foster & Stiffman, 2009). Successful implementation calls for some flexibility in how it the innovation is used, although problems may arise in deciding the bounds of flexibility of adaptation and customisation before effectiveness is compromised (Proctor, et al., 2009). Patient support is intervention-specific and so was not in Greenhalgh et al's original model but is examined in the present study.

Screening of patients' suitability for *FF*

Previous research showed that patients improved significantly with *FF* if their suitability had been briefly screened using the following criteria (Marks, et al., 2003):

1. presence of phobia or panic disorder (judged from answers to a short questionnaire and an interview checklist of ICD–10 diagnostic criteria).
2. absence of severe depression or active suicidal plans.
3. absence of substance misuse, psychosis or obvious brain damage.
4. motivation to try self-help.

The four areas discussed above (promotion, training & coaching, support, and screening) emerged from the literature as factors likely to influence the adoption of an innovation like *FF*. These 4 areas of interest are reformulated as hypotheses for testing in the present study.

Primary hypotheses (factors controlled by the change agency):

In the implementation of a complex innovation like *FF*, most variables are beyond the control of the change agency. The frequency of training/coaching sessions and GP visits are among the few factors representing an exception to this rule. The primary hypotheses of the present study are:

1. Training Supporters to deliver CCBT increases patients' completion rate (if Supporters are more knowledgeable about *FF*, this should yield better support and thus higher patient-completion rates).

2. Coaching Supporters enhances patients' completion rate (resembles hypothesis 1 - if Supporters are coached more on *how* to support *FF* patients, this should lead to better support and thus higher patient- completion rates).
3. GP promotion of CCBT's availability raises patient throughput[5] (if more GPs are aware of *FF*, they should be more likely to recommend it to Service Providers delivering *FF* which should lead to increased use of the program)

Secondary hypotheses (factors controlled by the adopting organisation):

Among the factors under control by the PCTs, support and screening procedures were chosen as suitable areas to be tested, given the attention they received in the CCBT literature.

4. Support (quantity and quality) of patients raises their completion rate (if *FF* patients are supported more frequently/for longer periods of time, they will be more likely to complete the program. Similarly, a breadth of different support strategies might enhance completion rates).
5. Initial suitability for CCBT boosts clinical outcomes (if suitable patients are referred to *FF*, they will be more likely to improve).

Measures to test the above hypotheses (in the order in which they appear above): H=the number of the hypothesis above

- Training (H1): number of training sessions CCBT Ltd gave PCT staff before the *FF* service began.
- Completion rate (H1, 2, 4): % of patients reaching at least Step 7.
- Coaching (H2): number of workshops run by CCBT Ltd staff for PCT staff after the *FF* service began.

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[5] To measure usage of CCBT by patients, a distinction can be made between *uptake* (proportion between patients offered CCBT vs. those actually starting it) and *throughput* (total number of patients starting treatment in a defined time period). Uptake rates are difficult to gauge in the case of CCBT administered in routine services. In busy, "real-world" settings it is often hard to record the number of users offered CCBT who subsequently denied it, while it is relatively easy to record the number of users starting treatment. For this reason, this dissertation uses throughput as the outcome measure to quantify CCBT usage by patients.

- Promotion to GPs (H3): number of GP surgeries visited by CCBT Ltd's staff whose GPs could refer patients to *FF*
- Throughput (H3): mean no. of new patients starting *FF* each month.
- Support quantity (H4): mean no. of support calls per patient, mean no. of minutes for each support session, mean no. of weeks each patient is supported.
- Support quality (H4): mean modality of support (face-to-face vs. phone), calls scheduled in advance (if supported by phone), patient's first login guided by the supporter (either by phone or face to face).
- Initial suitability for CCBT (H5): number of patients whose baseline ratings in *FF* were >4 for initial Trigger and Goal ratings, <6 for single-item depression or PHQ-9<15, and 0-1 for suicide risk questions 1 & 2 and 0 for suicide risk question 3[6].
- Clinical outcomes (H5): number of *FF* patients recovered (>50% improvement on WSAS).

Suitable statistics will be used to test each hypothesis. Activities carried out by CCBT Ltd's staff (training sessions, workshops and GP visits) will be measured by PCT and grouped by quarter (Quarter 1, 2, and 3) for the 9 months investigated in the present study. Their activities done in each quarter are expected to correlate significantly with the intended outcome variable in the following quarter (e.g. training sessions done in Quarter 1 are expected to correlate with completion rates in Quarter 2). At least one support variable is expected to associate with completion rates. Finally, suitable patients for *FF* are expected to improve significantly more than unsuitable patients.

Aims and objectives

Aims

The present study aims overall to identify what affected the national implementation of online computer-aided CBT in Primary Care Trusts across England, i.e. issues

[6] Question 1 = Have you been feeling life isn't worth living?
Question 2 = Have you been feeling like wanting to kill yourself?
Question 3 = Have you been thinking about how to kill yourself?
(0 = not at all; 1 = some of the time; 2 = most of the time; 3 = all of the time).

concerning supporters, service providers and PCTs. Meeting the aim requires a naturalistic pragmatic enquiry, not a RCT, because a RCT would inevitably impose far more control than is usual in routine care, thus making that care non-routine and unable to answer the main question. Answering the main question requires answers to sub-questions about the many stages in the complex pathway that leads from a PCT's

1. getting a licence to use CCBT
2. raising awareness among patients' and practitioners' that CCBT has become available in the PCT
3. setting up referral pathways for potential users of CCBT
4. organising methods to screen and assess suitability of those referrals and to offer suitable patients passwords to access the CCBT
5. identifying of sites where patients can access the CCBT (home, libraries, clinics…)
6. organising the brief support for CCBT users
    a. by which kinds of staff
    b. how supporters get the brief training needed
    c. whether they give support by phone or email or face to face.

This thesis does not address barriers to *initial adoption* or reasons for *discontinuation*, but it investigates how successfully or not CCBT was delivered in PCTs which had already adopted it (*outcome and impact evaluation*; Mendel, Meredith, Schoenbaum, Sherbourne, & Wells, 2008). An analysis of why 84 out of all the 145 PCTs across England did not purchase licences for *FF*, and of reasons for discontinuation, are beyond the scope of this dissertation.

Objectives

This dissertation has two objectives:

1. To *quantify* factors impacting on patients' uptake, completion and clinical improvement across three levels:
    a. Support Worker (individual – micro-level)
    b. Service Provider (team delivering *FF* – meso-level)
    c. PCT (healthcare organisation – macro-level)

2. To explore *qualitatively* the complexities of implementing CCBT in routine care, using Greenhalgh et al.'s (2005) model as the theoretical framework for the discussion of the results and answering the following sub question:
    a. Which are the most important themes explaining diffusion (or non-diffusion) of *FF* in the NHS?

2. METHODS

Introduction

Before proceeding to discussing the methodology used in this study, it is worth outlining some fundamental epistemological issues which underpin different approaches to inquiry. Epistemology (from Greek ἐπιστήμη, epistēmē) literally means the "study of knowledge". It is the branch of philosophy investigating the nature, theory and limitations of human knowledge (Curd & Cover, 1998). Over the centuries, several branches of epistemology have been recognised. Hegelian idealism, for instance, emphasises the innate, *a priori* knowledge which is not derived from experience but it is based on intuition. Conversely, empiricism (the philosophical tradition influenced by the works of John Locke, Francis Bacon and David Hume) views observation and experience as the ultimate sources of human knowledge. Unlike idealism, empiricism rests on *a posteriori* knowledge. This dissertation is an empirical study of how a complex, technology-based innovation was implemented in Primary Care Trusts across England. The chosen methodology was in large part beyond the control of the investigator. No randomisation was possible and he did not have control over many variables investigated in this study (e.g. how *FF* patients were screened and supported). For this reason, it is important to contextualise the approach used within several possible methodological frameworks.

Assumptions underpinning different approaches to scientific inquiry

Empirical inquiry can be broadly defined as a method of inquiry based on evidence gathered through observation. The scientific method is considered the chief approach for generating reliable knowledge in the natural sciences, and over the centuries it has also been adopted by the social sciences. The Oxford English Dictionary defines the scientific method as "a method or procedure that has characterized natural science since the 17th century, consisting of systematic observation, measurement, and experiment, and the formulation, testing, and modification of hypotheses". Central to the scientific method is the concept of hypothesis. A hypothesis is a claim (usually based on existing

theory) which is put forward for testing. Popper's famous demarcation criterion between science and pseudo-science is falsifiability, not verifiability, of a hypothesis. To be considered scientific, a theory must be open to disconfirmation. Where a hypothesis comes from is irrelevant; what is important is that a hypothesis *can* potentially be proven wrong through testing. When existing hypotheses are systematically falsified, the existing paradigm (defined as a "super-theory" underlining an entire tradition of scientific research; Curd & Cover 1998) gradually enters a state of crisis. If new data continue to disconfirm the existing paradigm, this is replaced by a new one which then progresses to the status of "normal science" (Kuhn, 1970) until a further paradigm is established. Science thus continuously replaces older paradigms with newer ones. Within the scientific method, two main forms of inquiry can be identified: experimental and observational methods.

Experimental method

The essential feature of the experimental method is manipulation of the variable(s) of interest, while controlling for possible confounders. For this reason, it is mainly (but not exclusively) laboratory-based. It is the chief method to investigate the efficacy of a new treatment through randomised controlled trials. Participants are randomly assigned to either the experimental or the control group (assuming the design is a parallel, two-group trial) and through randomisation makes it likely that the study groups differ only with respect to the treatment they receive. The experimental group receives the treatment being studied, while the control group is usually either put on a waiting list (passive control group) or is given a treatment which is known to be ineffective (active control). When participants naturally fall into 2 groups (treatment vs. control) but it is not possible to randomise them, then a quasi-experimental design is used instead.

Many experimental designs have been proposed, including factorial designs (to test the interaction between 2 or more variables of interest), crossover studies (half of the subjects are given treatment A and then are given treatment B, while the other half first receive treatment B and then receive treatment A), and cluster trials (the unit of randomisation is a group, for instance a school, rather than an individual participant). Trials can be classified into superiority, equivalence and non-inferiority trials. Superiority trials are designed to test whether a new treatment is better than an existing one. Equivalence trials investigate whether a new treatment is as effective as an existing

(often more expensive) option. Finally, non-inferiority trials test whether a new intervention is no worse than an existing treatment by a predefined margin.

A method commonly used to increase the validity of experimental research is that of blinding. Blinding refers to the inability of either participants or researchers to know what group they have been assigned to. Studies can be single-blind (only the subjects are unaware of their experimental condition) or double-blind (both the subjects and the research team are unaware of treatment allocation, though team members often get unintended clues to the treatment condition from what subjects say about their treatment).

Observational method

Sometimes it is neither possible nor desirable to create the conditions needed to carry out a randomised controlled trial. For instance, in many epidemiological studies the only option available to researchers is to study those who have been exposed to a particular risk factor (e.g. having smoked 20 cigarettes a day for 5 years) and explore the association between such exposure and an outcome of interest (e.g. probability of developing lung cancer). “Having been a smoker for at least 5 years” is an event which can only be studied retrospectively – it can’t be experimentally manipulated. In other situations, ethical reasons prevent the assignment of participants to an experimental rather than a control group. For instance, if an experimenter wants to assess the impact of having an abortion on self-esteem, the researcher should in theory recruit a pool of pregnant women and induce an abortion in half of the sample – which would obviously be unacceptable on ethical grounds. A further scenario where an experimental design would be inappropriate is when studying complex events within their contexts, e.g. when studying factors influencing how an innovation is implemented in routine care, as is the case in the present study. Imposing an experimental design would change the routine setting to a non-routine one, and the study would then be unable to answer the main research question.

In such instances, an observational study can be carried out instead of an experiment. In an observational study, the researcher makes inferences about the variables of interest through the systematic observation of study participants. The main difference between an observational study and an experiment is that in the former the investigator has no

control over the variables being investigated. Participants must be studied in their original groups and cannot be allocated to different conditions.

Observational studies can be classified as descriptive or analytic (Prince et al, 2003). Descriptive studies show the characteristics of a population of interest (e.g. patients diagnosed with a depressive disorder). By contrast, analytic studies seek associations between the independent and the dependent variables of the study (e.g. if losing a parent early in life is associated with an increased risk of developing a depressive disorder later).

Most observational studies report associations and cannot establish causality. For example, a study measuring whether attitudes toward a new treatment modality for major depression are related to current adoption rates cannot say anything about the direction of causality. If take-up turns out to be low, it is equally possible that 1. an unfavourable opinion of the new procedure caused low adoption, or 2. that initial problems experienced during the early stages of implementation resulted in later dissatisfaction. However, in some cases it is possible within cross-sectional research to impute causality and procedures have been developed to this end (Blalock, 1964; Davis, 1985). Bryman (1988) illustrates three conditions which need to be met to establish causal relationship among variables in cross-sectional research. First, there must be a relationship between the variables; second, the relationship must be non-spurious; third (and most important), the data analyst must determine a temporal order for the variables in question. For instance, in the above example, if (after controlling for possible confounders) it is found that higher usage of the new treatment modality is associated with a past event (e.g. whether the doctor using the innovation had been supervised during his/her professional training by a medical doctor or by a clinical psychologist) it is plausible to suggest that the kind of supervision might have caused the different adoption rate. It is logically impossible that a higher or lower post-training use of the intervention might have caused a different kind of supervision during past training.

Rigour in experimental and observational research

An important point deserving discussion is how experimental and observational research aim to achieve valid and reliable results. Both approaches rely heavily on objectivist assumptions, i.e. that reality can be objectively measured. Therefore, strict

procedures are put in place to guarantee the validity and reliability of the results. This is particularly important in observational research, as it is inherently more vulnerable than experimental research to non-random error generated by bias. The Table 2-1 below summarises the main strategies used in experimental/observational research to achieve rigour.

Table 2-1. Rigour criteria in experimental vs. observational research

	Experimental	Observational
Clearly-formulated hypothesis	✓	✓
Sufficient statistical power	✓	✓
Use of validated measures	✓	✓
Correct sampling strategies	✓	✓
Randomisation	✓	
Blinding	✓	
Use of active control group	✓	
Controlling for confounders	✓	✓
Minimisation of biases	✓	✓
Use of appropriate statistical procedures	✓	✓
Replication of findings by other researchers	✓	✓

An alternative paradigm: naturalistic inquiry

In natural sciences and most social sciences the scientific paradigm is the dominant one. Its supporters claim it is the most 'robust' method for generating valid and reliable knowledge. However, is it the only paradigm available to researchers?

In the second half of the 20th century, growing criticism emerged regarding the limitations of strict experimental procedures when applied to the investigation of complex phenomena occurring in natural settings. Some researchers called for a new paradigm, allowing a more flexible approach and more than one perspective, overcoming the (perceived) rigid rules of objectivist inquiry, especially in the case of evaluation studies. The new paradigm was called "naturalistic" (Lincoln & Guba, 1985), although it was later renamed "constructionist" by the same authors who initially promulgated it (Guba & Lincoln, 1989).

The naturalistic paradigm was said to be a completely new paradigm, a radical departure from the mainstream approach, called "positivist" by the authors. Throughout this dissertation, the term "positivist" is avoided, as it has become a confusing term, which has lost the reference to its original philosophical meaning – Comte's (1865) work – and has become increasingly used to identify a wide range of procedures related to mainstream research, sometimes with a derogatory connotation. For its proponents, the naturalistic paradigm is incommensurable with the scientific one. To use Egon Guba's words, comparing the naturalistic to the scientific paradigm would be like "judging Roman Catholic theology on the basis of Lutheran dogma" (Erlandson, 1993, p. x)

The fundamental principle of the naturalistic approach is the plurality of the social world. According to constructivists, there is no single reality. Multiple realities are socially constructed and there are as many realities as the number of observers. Facts are not the way they actually *are*; rather they are *constructed* in the mind of the observer. Radical constructivists would not even concede that there is a world out there which can be known. The interpretation of constructed realities is never separated from an analysis of the value attached to them – all human behaviour is context-bound. The task of the naturalistic researcher is not to search for objectivity by seeking to minimise observed differences, but rather to explore the richness of variations between different perspectives. Strictly speaking, bias does not exist in naturalistic research – only premeditated deception does (Erlandson, 1993).

Unlike experimental/observational research, the design of a naturalistic study is not specified in advance. Naturalistic researchers often prefer to work without *a priori* theories, favouring an emergent approach where theories surface from the data and not vice-versa. There is no strict definition of the tools and data analysis procedures to be used, as the human normally *is* the instrument. A further element of distinction is the relationship between the researcher and the phenomena being investigated. The naturalistic paradigm prefers a "subject to subject" rapport, while the scientific approach adopts a "subject to object" relationship. There is no fracture between the inquirer and the inquired; the knowledge produced as part of the investigation cannot be separated from the knower (Alvesson, 2009).

Rigour in naturalistic inquiry

Naturalistic inquiry permits far greater flexibility when it comes to the ability of capturing the richness of ecological data. However, how is rigour achieved in naturalistic research? Lincoln & Guba (1986) suggest three criteria. These principles are called "parallel", as they match equivalent quality criteria already established in scientific research.

The first criterion, credibility (the equivalent of internal validity) means that the findings of naturalistic inquiry should be plausible. It is achieved through prolonged engagement with the research material, persistent observation of the phenomena under study, triangulation (involvement of more than one researcher and the use of different methods), peer debriefing (discussing the research with colleagues), negative case analysis (paying particular attention to factors disconfirming the theory being generated), and member checks (asking the opinion of disinterested professionals).

The second criterion, transferability, is the equivalent of external validity in the scientific paradigm. In naturalistic research, transferability is achieved by "thick description" – a description of the setting under study that is sufficiently detailed to "bring the researcher or reader vicariously into the setting" (Erlandson, 1993, p.18). Although in naturalistic research full generalisability is often impossible, through thick description the reader can be helped to understand the phenomena observed well enough to then apply the lessons learnt to the setting he/she is working in.

Dependability (or confirmability) is the third criterion, which is the equivalent of reliability. Carrying out an audit trail by an external auditor is a measure which guarantees the consistency of the findings should the research be repeated.

The three criteria just described were proposed to match long-standing criteria used for the traditional paradigm. However, as the naturalistic paradigm is different from the usually-assumed scientific paradigm, Lincoln & Guba (1986) have proposed a fourth – naturalistic-only – set of criteria, which they call "authenticity". The main factor within it is 'fairness', described as the involvement of all stakeholders through the research process and the description of all emerging (and possibly conflicting) realities in an open and balanced way.

As well as Lincoln & Guba's criteria, rigour in naturalistic inquiry is also achieved through reflexivity, meaning that "serious attention is paid to the way different kinds of

linguistic, social, political and theoretical elements are woven together in the process of knowledge development, during which empirical material is constructed, interpreted and written." (Alvesson, 2009, p.9). Reflexivity implies two fundamental characteristics: careful interpretation, and reflection. Careful interpretation means that data are not self-explanatory and unequivocal, but rather require a process of interpretation by the researcher. Reflection is a form of inward attention toward the researcher, the local community and society, with all its social/political and ideological implications. It involves thinking about the way one thinks, which is a process of interpreting the interpretation.

Methodological approaches considered for this study

This investigation is a multi-site national case study researching factors influencing the implementation of CCBT in PCTs across England. It is Phase IV research (M. Campbell, et al., 2000; Medical Research Council, 2008) addressing the long term, post-RCT implementation of CCBT for panic/phobia in the NHS across England. There is a paucity of research into the large-scale implementation of CCBT. For this reason, in addition to a set of hypotheses put forward for testing, within the quantitative part of the research an exploratory part of the study was added which is not hypothesis-driven but instead aims to generate hypotheses for future testing. A mixed-methods approach was chosen to combine the respective strengths of quantitative and qualitative methods. This study adopts a concurrent embedded design like that described by Creswell (2009). A concurrent embedded design involves the collection of quantitative and qualitative data at the same time (no set of data is analysed before proceeding to the collection of a further set) and the emphasis of the study is on the quantitative part, i.e. the qualitative part is embedded into the quantitative and not vice-versa. This study does not use quantitative and qualitative data for mutual validation (*convergence*) but rather to complement one another.

The data collection was hierarchical with three levels: 1. PCT (healthcare purchasing organisation), 2. Service Provider delivering *FF* (can be more than 1 team per PCT), and 3. Mental Health Worker supporting *FF* patients (individual Supporters attached to one Service Provider). The two main features of this project are its i) wide scale

(national implementation) and ii) naturalistic settings in which *FF* was implemented (providers delivering *FF* were routine primary care and third sector mental health services). Screening/support procedures for *FF* patients as well as many other variables were beyond the control of the Principal Investigator (PI). This study is thus an analytic observational study in its quantitative part (cross-sectional surveys) and it uses naturalistic methods (thematic analysis) to analyse the in-depth interviews. The study is in its entirety naturalistic, combining non-experimental approach for the quantitative part together with a more unstructured, meaning-oriented approach to the analysis of qualitative data. Before proceeding to the description of the recruitment strategies and data analysis procedures, it is important to illustrate different methodological options and rationale for the methods chosen.

Quantitative methods

Quantitative research involves the quantification and measurement of observed phenomena. Most (but not all) quantitative research follows the deductive model – a specific hypothesis is originated from a pre-existing theory and is subjected to empirical testing. Procedures for investigation are codified, and the steps to be used are detailed before the research starts. Causality is what most quantitative methods seek to establish, as is the case in experimental research. However, as discussed on p.63, this is not always possible or desirable. Other designs can be used within the quantitative approach (quasi-experiment, cohort studies, case-control studies, ecological studies and cross-sectional surveys; Prince et al, 2003).

A central aspect in quantitative research is how to minimise threats to internal and external validity. The use of valid and reliable measures is an important step toward minimising such threats. A measure is considered valid if it gauges what it is supposed to measure. For instance, if a new indicator aims to measure clinical depression, it should capture "clinical depression" and not another construct (e.g. anger). Reliability, on the other hand, means that if the same measure is used by different researchers (or by the same researchers at different time points) it will yield consistent results. Valid and reliable measures are particularly important in the case of observational studies (where confounders are more likely to be present when it is impossible to randomise participants) and in non-biological research, where it is not possible to rely on stable biological markers. Where possible, it is preferable to use an existing, validated

measure. If this is not feasible, a new measure needs to be created. Prince and colleagues (2003) suggest the following procedure when creating a new measure:

1. Definition of the construct
2. Review of the construct definition
3. Item drafting
4. Item review
5. Alpha testing
6. Beta testing
7. Post-development testing

First of all, the construct under investigation needs to be identified. Subsequently, an expert in the field and a lay person review the definition of the construct, suggesting amendments if needed. The questionnaire item is then drafted by the researcher(s) and it is subsequently reviewed by the same expert and lay person who reviewed the construct definition. Further to that, a preliminary (alpha) testing is carried out with a sub-sample of participants (50 to 100), in order to establish test-retest reliability, ceiling and floor effects, and the scale's internal consistency. Unreliable items are discarded. In a subsequent step, the remaining items are tested for concurrent and criterion validity using a different sample from the one used for alpha testing. Factor analysis is commonly used at this stage to check whether the different items of the scale do indeed measure different constructs. Finally, the measure is used by a wide range of researchers so that the validity and reliability of the new measure are tested across different populations and settings.

In addition to establishing the validity and reliability of the measures used, consideration must be paid to the statistical power of the study in order to minimise threats to internal validity. Power is defined as the probability of rejecting the null hypothesis when the null hypothesis is actually false (i.e. the probability of not committing a Type II error). Statistical power depends on three factors: the level of significance for the chosen test (also called α), the sample size and the strength of the relationship existing between the variables (effect size). For a given effect size, the power increases with sample size. For this reason, it is important that enough participants are recruited in the study so that in case of negative findings the researcher can be reasonably certain that there is no relationship between the variables.

Biases are other major threats to internal validity. Biases are implicit (and often unconscious) systematic preferences in the subjects or in the researchers that can invalidate the results of the study. There are three main kinds of biases: selection bias, response bias, and observer bias.

Selection bias happens when an inappropriate sampling frame leads to a sample which is not representative of the population under investigation. For example, in a study assessing the link between smoking and heart disease, including only people who are heavy smokers would give a distorted picture of the true relationship between the variables.

Response bias occurs when the proportion of subjects returning a response is not representative of the whole sample. For instance, if 200 questionnaires are emailed to a population which has equal numbers of males and females but the respondent group is 90% female, this is a source of bias in the study.

Observer bias occurs when the researchers influence the results of a study through their knowledge of the study's aims. Asking particular questions only to certain, not all, subjects during interviews would be an example. Observer bias could also occur during data analysis, if researchers willingly use techniques to 'massage' the data in order to produce results confirming their hypotheses.

Finally, the way in which measures are collected can have a profound effect on the results of a study. In the case of cross-sectional surveys, questionnaires can be administered by a researcher or filled out by the participant (self-reported measures). Questionnaires can also be administered in person, on the phone, by post, or on the internet. Internet-administered surveys have become particularly popular in recent years, due to the flexibility offered when designing the survey (ease of asking certain questions only if pertinent – tree logic) and the inexpensive administration channel, obviating travelling time to visit participants, so allowing instantaneous, worldwide reach. Where similar benefits are sought but the presence of the researcher is needed, phone surveys offer a suitable alternative.

It must be said, however, that both internet- and phone-administered surveys lack the same level of depth that a face-to-face interaction can guarantee. Non-verbal communication, for instance, is missed. In internet-administered questionnaires, participants do not have the chance to ask for clarification if a question is perceived to

be unclear, while in a questionnaire administered in a face-to-face session the researcher can answer participants' questions or immediately deal with inconsistent answers (e.g. if participants obviously misunderstand a question). Special attention must therefore be paid to such issues when measures are self-reported.

Qualitative methods

Qualitative research is a broad area of inquiry, encompassing the methods concerned with the *why* and *how* rather than the *what*, *where* and *when* typically addressed by quantitative investigation. Qualitative inquiry is a highly heterogeneous methodological tradition. As Yin (2010) points out, a formal qualitative methodology probably does not exist (p.10). Tesch (1990) lists at least 45 different approaches to qualitative inquiry, each stemming from different assumptions and each following diverse methods for data collection and analysis. In general, while quantitative research tends to be deductive (top down), qualitative inquiry tends to be inductive (bottom up). It is more unstructured compared to quantitative research; the steps to be followed are usually less clearly defined than in quantitative research.

It is an error to believe that the naturalistic paradigm uses only qualitative studies, while quantitative methods are the exclusive domain of scientific inquiry (Erlandson, 1993). Both quantitative and qualitative methods can be used, though the richness of data produced by qualitative inquiry means this is usually the preferred approach.

Having acknowledged the difficulties in finding a single agreed definition, Yin (2010) outlines five main characteristics of qualitative research:

1. Qualitative research studies the meaning of people's lives under real-world conditions. While most experimental research is laboratory-based and thus by definition "artificial", qualitative research emphasises the importance of studying naturally-occurring facts within their own environment.
2. It represents the views and perspectives of participants. In interviews and focus groups, participants are free to express their opinions without being constrained by the rigid limits imposed by a quantitative survey instrument.
3. The focus is on investigating the context in which people live. In other words, knowledge gathered through qualitative methods is contextualised. Through the responses of participants involved in qualitative research it is possible to study

(whether directly or indirectly) the settings within which they live or work, thereby making qualitative methods particularly suitable for the collection of field-based data.

4. Qualitative research facilitates the gaining of insight into concepts that may help to explain aspects of human behaviour. The focus of qualitative research is on description, not analysis. Qualitative research does not collect/record facts; a key endeavour is to understand *how* people behave and *why*.
5. Multiple sources of evidence are used – interviews, focus groups, analysis of documents.

Bryman (1988) stresses two important advantages of qualitative inquiry. First, it helps understanding of the *process* by which certain outcomes are determined, rather than just measurement of the final output as is usual in quantitative research.

Second, qualitative methods grant the researcher a significant degree of *flexibility*. Its lack of a pre-defined structure is an advantage rather than a disadvantage. Changing approaches during the course of the research (for instance, by amending the topic guide for a semi-structured interview) is an acceptable way of dealing with complexity of the data. Usually, qualitative data sets are voluminous, and it is a challenge for qualitative researchers to fully describe the details of the procedures used.

Qualitative research can be carried out by a single investigator or by a team. In the latter case, the impact of individual researchers' coding can be assessed (triangulation). This is further facilitated by the use of computer programs (both commercial and open-source). However, computers simply facilitate the organisation of the material and coding by avoiding the physical cutting and pasting of paper segments from transcribed interviews. It does not replace human interpretation.

Qualitative analysis uses varied sources of evidence, including participant observation, interviews, life history records (diaries and autobiographies), and focus groups among the many strategies used to collect data. As well as using varied sources of evidence, qualitative research uses varied methods of analysis. A common strategy to analyse qualitative data is thematic analysis (Boyatzis, 1998), which allows the researcher to identify patterns of meaning in the data. Some authors consider this approach to be essentially theory-neutral, meaning that it can be used across a variety of theoretical positions and epistemological approaches (Braun & Clarke, 2006). Thematic analysis is used both in top-down (where the coding framework is already established and it is

applied to the data) or bottom-up studies (in which the coding framework is developed inductively starting from the data). Other approaches in qualitative analysis include content analysis (usually of communication materials such as books, videos or websites; Berelson, 1952), grounded theory (where the scope of the research is the generation of a new theory firmly "grounded" in the data; Glaser & Strauss, 1976), and Interpretative Phenomenological Analysis (which aims to understand in great detail how participants make sense of their lived experience; Smith, 2009).

Quality criteria for qualitative research tend to follow the principles outlined above when discussing rigour in naturalistic enquiry (p.67). Yin (2010) adds 3 further criteria to build trustworthiness into qualitative inquiry:

1. Transparency – describe in great detail the procedures employed to gather and analyse data
2. Methodic-ness – follow an orderly set of procedures during research, thus increasing reliability and minimising careless work
3. Adherence to evidence – a researcher should always try to interpret the meaning that participants' statements have for them, rather than for the investigator (minimising risk of projection; i.e. attributing the researcher's views to the participants).

Quantitative and qualitative approaches: incompatible world views?

After having considered the quantitative and qualitative methods separately, the crucial question is whether they can be integrated into a single study. Historically, the integration of quantitative and qualitative perspectives has not always been easy, due to the different philosophical traditions the two approaches stemmed from (Tashakkori & Teddlie, 1998). Qualitative research is often equated with *scientific idealism*, while quantitative investigation is frequently associated with *scientific realism* (Morgan, 2003). Scientific idealism is defined as "the view that the external world consists merely of representations and is a creation of the mind" (Murphy et al., 1998, p.64). Ultimately, if there is an independent world out there, it can't be known. The world exists only in the eye of the beholder and there are as many "worlds" as the number of observers. Taken to the extreme, scientific idealism proposes that the world is a creation of the

mind. Anti-realist philosophies affirm that to understand social phenomena, studying people's actions is not enough. It is essential to understand the socio-political context and the meaning that people attach to their actions.

On the other hand, scientific realism postulates that the world exists beyond our perception of it. Reality is not mind-created; instead, it *does* exist outside of the observer and the role of the researcher is to get to know it with the highest possible degree of accuracy. Since the world exists independently of the observer, seeking 'truth' is a legitimate effort. For social scientists adhering to the realist paradigm, the social world mirrors the natural world and the observer should be detached from the facts observed and set himself in a 'subject to object' relationship (p.66). Reality, however, cannot be fully grasped through a single observation. Multiple cues coming from a variety of sources and accumulating over time is a reasonable way to approach it. Funder (1999, p.88 – adapted from Block, 1989, p.236-237) tellingly describes the "duck test" to illustrate the process of convergent validation of such cues:

> *Consider how we might go about deciding whether something is a duck [...] The first question we might ask is, does it look like a duck? Let's say it does. Are we safe in concluding it is a duck? Not so fast. Perhaps it is merely a duck decoy or a high-quality toy duck. So go on. Does it quack like duck? Does it walk like a duck? Say the answers are again yes. Now is it a duck? We still cannot be sure, because it might be some sophisticated audio-animatronic imitation. But a reasonable person might be fairly sure it is a duck. Say we observe now that the duck-like object swims, migrates to warmer climates in the winter, and lays eggs. At some point, as the evidence accumulates, it becomes absurd to think the stimulus is anything but a duck.*

The idealist and the realist positions taken to their extremes assume that quantitative and qualitative methods are essentially incompatible, as they rest on diametrically opposite world views. However, are the equations 'quantitative = realist' and 'qualitative = idealist' so stringent? Some researchers (Hammersley, 1991) have questioned this view, noting that many researchers use qualitative methods while holding a realist perspective. Phillips (1990) points out how it is possible to study individuals' perceptions as constructed social realities, while maintaining a concern for 'truth' which is not identified by such perceptions. By the same token, quantitative research can be used in an explorative way, as is the case in this study. Quantitative and qualitative approaches are complementary, not incompatible. This is particularly important in

health services research, where research questions often arise from complex problems of a practical nature, and adopting a variety of perspectives is likely to be the best way to answer such questions. Choosing the most suitable research method(s) should rest on empirical, not ontological grounds. The methods chosen should depend on the research question at hand, and not on previous assumptions of incompatibility between methods.

In sum, 'quantitative' does not necessarily mean realist and 'qualitative' does not automatically mean idealist. A compromise between the two approaches is possible**.** The radical view that reality exists only in the mind of the observer raises basic questions about the possibility of sharing knowledge within the scientific community. On the other hand, a view that social reality can be easily accessed and unquestioningly studied is naïve. Access to social facts is always mediated by culture. Cultural lenses mediate even the most 'robust' knowledge gained in the physical sciences. The intellectual landscape in which Isaac Newton formulated classic mechanics was profoundly different from the cultural context in which Werner Heisenberg developed quantum mechanics and his famous uncertainty principle. The idea of pure, unbiased access to social phenomena is therefore illusory. *Subtle realism* (Hammersley, 1991) offers a sound philosophical basis for combining diverse methodological strategies like quantitative and qualitative, affirming that a world exists outside of the observer and, while this world can be known, one can only know it through the socio-cultural lens of the observer:

> *"The subtle realism retains from naïve realism the idea that research investigates independent, knowable phenomena. But it breaks with it in denying that we have direct access to those phenomena, in accepting that we must always rely on cultural assumptions, and in denying that our aim is to reproduce social phenomena in some way that is uniquely appropriate to them. (p.52)*

Data collected

Participants

Throughout this thesis, the term "participants" always refers to the "implementers", i.e. the organisations and professionals involved in the implementation and delivery of the

FF service in the NHS. As detailed in the limitations of this study (p.192), the PI had no direct contact with patients. Screening of suitability for *FF* was done by PCT staff whom the PCT nominated to be in charge of the patient.

Independent data were gathered through questionnaires and interviews. Dependent *(outcome)* data were gathered from the Patient Progress Monitoring System (*PPMS*) which collects patients' anonymised data to safeguard confidentiality as required by the Data Protection Act. Access to the anonymised database is password-protected and its data cannot be linked to any patient's personal details except by PCT staff themselves. However, any patient's ID can be linked to their respective PCT/Service Provider/Supporter. All participants and their provider/PCT were coded to protect anonymity (e.g. Lead 31, Service Provider 37, PCT 145). Table 2-2 below summarises the data collected. The analysis and reporting of quantitative and qualitative data will be conducted separately.

Table 2-2. Data collected

Level	Participant(s)	Quantitative	Qualitative
1. PCT	Nurse Advisors	NA's questionnaire	Interview
2. Service Provider	(Team) Lead	Lead's questionnaire	Interview
3. Support Worker	Support Workers	Supporter's questionnaire	

Nurse Advisors (NAs) were CCBT Ltd staff supporting the implementation of *FF* in the NHS. A Team Lead (or Lead, for short) was the main individual responsible for managing the implementation of *FF* in their organisation. Supporters were the professionals (mostly Psychological Wellbeing Practitioners) responsible for setting up and supporting *FF* patients.

Quantitative

The quantitative part of this dissertation is an analytic observational study (seeking associations between variables) and it includes two components: *hypothesis-testing* and *exploratory*. The hypothesis-driven section tests the 5 hypotheses outlined on p.54, while the exploratory portion investigates a wide range of factors potentially associating

with one or more outcome variables. While the hypotheses are expected to associate with the specified outcome variable (throughput, completion rates, or clinical improvement), each additional factor is not meant to necessarily associate with every single outcome variable.

Given the nature of the study, it was decided to use a series of cross-sectional surveys as the most appropriate way to capture a wide range of factors likely to be influencing the delivery of CCBT. The questionnaires' content was derived from pertinent factors listed by Greenhalgh, Robert, Bate, et al., (2005) and relevant CCBT areas as suggested by Marks et al. (2007b, p.4). Where necessary, further issues from the Implementation Science literature were added, e.g. "coaching" (Fixsen, et al., 2005). A few factors based on the PI's experience of implementing CCBT in the NHS were considered important and thus included in the questionnaire (e.g. number of self-help books available to the team).

Cross-sectional surveys were considered the most efficient instruments because of a) the high number of teams taking part in this study (37 services spread across England) and b) the possibility of administering them over the Internet, making them cost-effective with the resources available. The cross-sectional surveys captured mainly self-reported measures. Since not all participant groups were interviewed, in some cases this was the only way to obtain the data of interest (e.g. Supporters' attitude toward CCBT). In other instances, more reliable data obtained directly from the services' IT systems could have been included (e.g. demographics for patients doing CCBT). However, the difficulties involved in obtaining the necessary permissions for all sites within the limited time available ruled out this possibility. Moreover, in some services (mainly in the voluntary sector) data capture about many service variables was not always consistent, so it is unlikely that such data would have proven to be reliable.

Previous studies used questionnaires to investigate therapists' use of and perceptions about self-help/CCBT (Keeley, 2002; Whitfield & Williams, 2004). While addressing similar themes, a customised set of questionnaires was created for this study (Boynton & Greenhalgh, 2004) because many variables of interest were not in Whitfield & Williams' study (e.g., screening procedures and mode of support). Other studies used different questionnaires to investigate attitudes towards CCBT (the Attitudes to CCBT Questionnaire and the Patient Feedback Questionnaire for CCBT; Cavanagh, et al.,

2009); these examined patients' perceptions, so they were not considered suitable for this study.

The new set of measures was developed by the PI and the second supervisor (IM), who has extensive experience in CCBT research. Constructs of interest were identified and, through a series of discussions, a final list of areas deserving inclusion in the questionnaires was drawn up. Preliminary items were drafted and reviewed several times. Alpha and beta testing was not performed. As discussed on p.70, Prince et al. (2003) recommends a sample of 50 to 100 participants for alpha testing, and such a requirement was well beyond the resources available for this study.

The new questionnaires were designed to minimise rating fatigue and maximise return rates. Studies of the relationship between questionnaire length and response rates reported mixed results (Bogen, 1996). It is unclear how much this was due to methodological problems, e.g. comparing studies where questionnaires were distributed in different ways (Adams & Gale, 1982). Common sense suggests that the longer the questionnaire, the lower the response rate, though there is surprisingly little empirical support for this assumption. Some authors wondered whether response rates were more influenced by questions' quality rather than length (Burchell & Marsh, 1992; Edwards, 2004). Subar et al (2001) found that clarity and ease of administration were more important than brevity in improving response rates. Some studies looking specifically at web questionnaires (Galesic & Bosnjak, 2009) found that answers to questions towards the end of the questionnaire were shorter and more uniform than answers to questions at the start of the questionnaire. It was expected that a slightly longer but carefully-designed questionnaire would nevertheless yield acceptable response rates because the PI had already met many of the participants as part of his non-academic duties (working as Implementation Manager for CCBT Ltd).

All questionnaires were administered through the web. Skip logic was adopted where possible, i.e. certain questions were asked only if pertinent. Some of the questions had a "Comments" box for respondents to type free text for later qualitative analysis. Being able to clarify an answer or add details was regarded as important by participants. Physical layout of the questionnaire was taken into account (Boynton & Greenhalgh, 2004). Questions were as unambiguous as possible, and were without double negatives.

Supporters

The Supporters' questionnaire investigated individual workers' practices and opinions about CCBT (for the full list of questions, see p.210).

1. Background information
2. Use of CCBT in previous posts
3. Use of CCBT in current post
4. Support variables (e.g. average length and means of patients' support)
5. Supporters' treatment preference
6. CCBT usage modalities (with respect to other treatments)
7. Training (standard, *pre*-service meeting)
8. Workshops (additional, *in*-service meetings)
9. *FF* version first used
10. Barriers/boosters, Statements about *FF*

Two main strategies were used to raise the return rate of Supporters' questionnaires: a) non-responders were emailed up to 7 reminders at regular intervals (Hoffman, Burke, Helzlsouer, & Comstock, 1998) and b) a raffle was introduced, with 5 prizes (vouchers and books) valued about £20 each. In addition, Supporters were only emailed the questionnaire after their Lead had agreed to take part in the research and had emailed the team introducing the research and inviting them to take part.

Leads

The Leads' questionnaire captured the essential structural variables of the service provider in which *FF* was delivered. For the complete list of questions, see p.212).

1. Background information
2. Referrers
3. Referral pathway
4. Screening procedures
5. Assessment procedures
6. Service metrics (e.g. average number of referrals per month)

7. Data from the Service's Patient Management System[7]
8. Self-help books
9. Other CCBT packages
10. *BtB* usage data[8]
11. Expectations, Barriers/boosters, Statements about *FF*

Nurse Advisors

This questionnaire was given to CCBT Ltd's staff of NAs who supported *FF*'s implementation in the NHS. The scope of this survey was to investigate *process* variables related to implementation and to provide ratings of organisational factors and levels of involvement in each PCT. This questionnaire therefore followed the *implementation process* category of Greenhalgh and colleagues (2005) model closely.

In the first part of the questionnaire, each NA detailed activity carried out with every PCT in their territory each month, spanning July 2009 to April 2010. Activities were training sessions or workshops with supporters delivering *FF*, and visits to surgeries whose GPs could refer patients to Service Providers delivering *FF*. As the number of surgeries in each PCT varies hugely across England (in August 2010 it ranged from 22

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[7] The original aim of the questionnaire was to gather data from the Leads about their service (patients' ethnicity, diagnoses, and take-up of different treatments) that could be extracted from the Patient Management System in use (in IAPT services, most often PC-MIS or IAPTus). However, this operation proved more difficult than expected. Often the person responsible for data extraction was not the Lead; hardly any non-IAPT services (*N*=11) used PC-MIS or IAPTus, and their only option was to provide their best guess, thus making the results unreliable. In IAPT services, some services recorded the Primary Diagnoses as the GPs' diagnoses, while other teams used the same label for diagnoses made by the IAPT workers. Similar difficulties in obtaining diagnoses in IAPT services were reported in the literature (Glover, Webb, & Evison, 2010). For these reasons, this section of the questionnaire is excluded from the analysis.

[8] This study duplicated some of its questions to enquire about other CCBT packages used in the NHS, i.e. Beating the Blues™ (*BtB*), Living Life to the Full (*LLTTF*), and MoodGym (*MG*). The original aim was to collect outcome data from the Leads similar to those of the *PPMS* (discussed on p.33), to allow head-to-head comparisons with *FF*. However, obtaining such data at the patient level proved impossible without involving the developers of these packages. The extent to which Supporters used CCBT packages other than *FF* varied significantly, with most supporters (*N*=121, 71% of the total 171) reporting no usage of either *LLTTF* or *MG*. Even obtaining aggregated data for the most frequently-used package (*BtB*) involved major difficulties - only 19 out of 37 services could provide aggregated *BtB* data. Of those 19 services, 7 provided partial data (no PHQ-9 or GAD-7 scores) and 2 services provide best guesses only. Data were collected from both the Supporters and the Leads in parallel, so it was not possible to assess the extent of missing data until data collection had ended. On the other hand, patient-level outcome data for *FF* could be reliably gathered from the *PPMS*, so it was decided to analyse *FF* data only.

to 237), percentage of surgeries visited was used instead[9]. No training sessions or workshops were done in July and, by the end of the month, only 50% of the Nurse Advisors were in post. July 2009 was therefore excluded from the analysis, yielding a 9-month time range which was subsequently divided into 3 3-month periods (quarters) for a more parsimonious presentation of results. One NA was responsible for visiting surgeries only and her territory (Yorkshire & Humber SHA) overlapped with that of another NA (who did not visit GPs in that SHA), so their answers were combined.

To avoid overload, ratings were asked for each PCT as a whole rather than for all service providers. Only ratings about PCTs with a single service provider which later took part in the research were analysed, yielding 22 PCTs. The list of questions is available on p.213.

1. Background information (e.g. job's start date)
2. Activity (training sessions/workshops/surgery visits per PCT by month)
3. Organisational structure
4. Leadership and management
5. Human resources
6. Funding
7. Intra-organisational communication
8. Extra-organisational network
9. Feedback on *FF*
10. Potential for adaptation/reinvention

Qualitative

In-depth interviews were conducted by the PI with Leads and Nurse Advisors to clarify and enrich their quantitative answers. Given the heterogeneity of services and their site-specific arrangements for delivering CCBT, a fixed list of predefined questions was not prepared, as this would have prevented participants from fully exploring areas of particular importance for them. Unlike semi-structured interviews, in-depth discussions

[9] Details of GP surgeries for each PCT were obtained from www.connectingforhealth.nhs.uk/systemsandservices/data/ods/datafiles (last retrieved: 06/11/2010).

allow participants to digress at times and such explorations are likely to be particularly rich in meaning. Bryman (1988; citing Measor, 1985, p.67) lists 'rambling' as one of the advantages offered by interviews which do not follow a strict set of questions:

> *Inevitably the interviewee will 'ramble ' and move away from the designated areas in the researcher's mind. 'Rambling' is nevertheless important and needs some investigation. The interviewee in rambling is moving onto areas which most interest him or her. The interviewer is losing some control over the interview, and yielding it to the client, but the pay -off is that the researcher reaches the data that is central to the client.*

However, 2 questions soon emerged as important and were then asked of all participants ("If you had no constraints, what would you do to make CCBT a success in your organisation?" or "Is there anything that can explain the pattern of CCBT use since you went live with this service?").

Due to the high number of Supporters involved (N=171), it was decided not to interview them. Even selecting a subset of Supporters across all 37 teams would have yielded too many interviews for the resources available. Similarly, focus groups were not run due to lack of resources to process such additional data which would require their transcription and coding. However, open-ended questions from the questionnaire asking Supporters and Leads about barriers/enhancers for CCBT implementation, and asking only Supporters about things they liked/didn't like about *FF,* were included in the qualitative analysis.

All consenting participants (Leads and NAs) were interviewed and in addition all the above-mentioned questionnaire sections were analysed. In a recent qualitative study on difficulties in implementing eHealth initiatives (Murray, et al., 2011), 10 interviews for each initiative under study were enough to achieve saturation. Guest et al. (2006) systematically documented the degree of saturation over the course of their qualitative analysis, and concluded that saturation occurred within the first 12 interviews. It was therefore decided that if more than 15 Leads consented to be interviewed (out of 37 Leads who also filled out a questionnaire) this constituted a large-enough sample.

Leads

Thirty-two Leads consented to be interviewed after they had returned their questionnaire. For logistic reasons (because it was a national study), 6 Leads were interviewed face to face and 25 by telephone. One Lead was initially interviewed by telephone but due to technical problems the interview was later completed face to face. Two interviews were excluded (1 phone interview could not be recorded due to technical problems and 1 face-to-face interview was not transcribed due to the interviewee's poor English). Therefore 32 interviews were transcribed. The mean duration of interviews with Leads was 46 minutes.

Before the interview, the PI emailed each Lead a copy of their questionnaire (including their answers) and a graph showing the *FF* throughput in their service since the date it went live. The first part of the interview with the Leads reviewed their questionnaire answers in detail, and amended them where necessary (e.g. if an item had been misunderstood). The second part of the interview was introduced by a general question ("how has the experience of using *FF* in your service been so far?" and then used the headings of the questionnaire as the topic guide. This structure gave the interviewee a chance to freely discuss aspects of CCBT they thought were more relevant to their service initially, and later to comment further on the most salient aspects of the questionnaire (as identified by the interviewer).

Nurse Advisors

The PI interviewed all 6 Nurse Advisors (NAs), 1 face to face and 5 by phone. In the NA's interview, the first part reviewed the previously-completed questionnaire checking for potential inaccuracies. The second part sequentially reviewed each PCT that the NA looked after, discussing in detail the main difficulties and/or facilitating factors each NA encountered in implementing *FF* there. As in the Lead's interview, 2 questions were asked of each NA ("Which are in your opinion the top 3 factors for a successful implementation of *FF* in the NHS?" and "What has been the most rewarding and the most frustrating aspect of your job as a NA?"). The mean duration of interviews with NAs was 58 minutes.

Outcome data

The PI extracted outcome variables directly from the internet *PPMS* (Patient Progress Monitoring System) that comes with *FF*. The following outcome measures were extracted on 15th October 2010 for 3,528 NHS *FF* patients activating their *FF* account – username and password (activations after 31st July 2010 were excluded, in order to not bias step progression and clinical improvement data):

1. Throughput: *FF* account's activation date (date when patient began *FF*).
2. Step progression: highest *FF* step reached (0-9).
3. Clinical improvement: first and last rating on the Work and Social Adjustment Scale (WSAS, 0-40; Mundt, et al., 2002), Trigger (Main problem; 0-8) and Goal[10] (0-8; Marks, 1986).
4. Suitability: *FF*'s 3 suicide risk questions (see p.58).

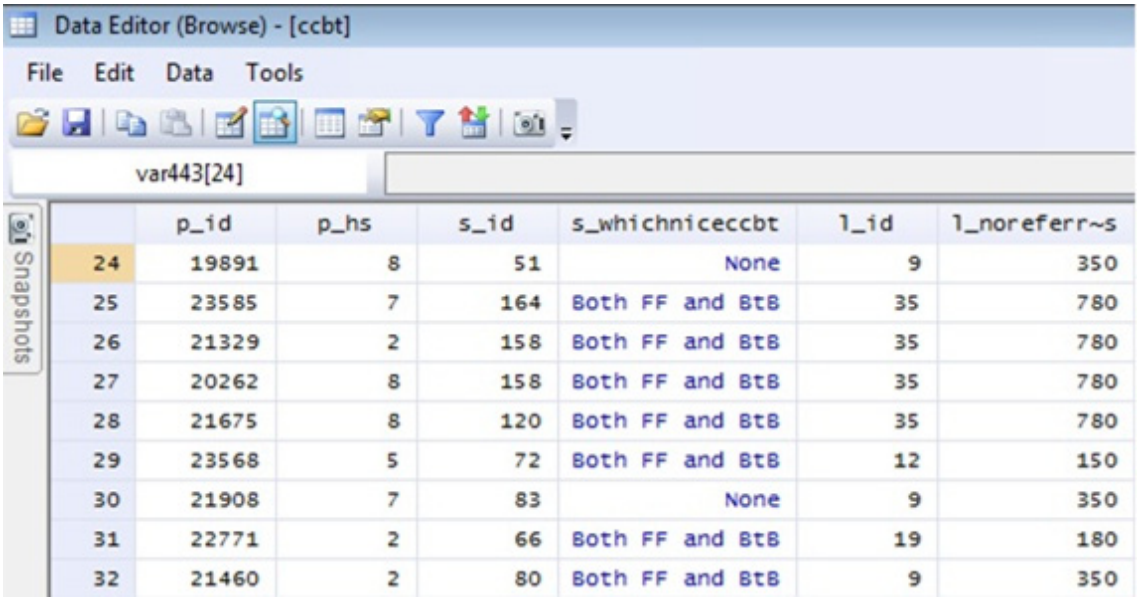
Data analysis

Raw data were exported from the website used to collect questionnaires into Microsoft Excel. Data were cleaned and checked for accuracy, and contradictory answers were discussed with either the Nurse Advisors/Leads during the interviews or with individual Supporters on the phone or by email. Data were then imported into a relational database (Microsoft Access), as this allowed the PI to have a single repository for all the data while keeping them organised in separate tables. Suitable SQL (Structured Query Language) queries were built to extract information of interest. The final aim of the database was the creation of 2 master tables, 1 for the Nurse Advisors and 1 for the Supporters and Leads. The NA's table included patient data aggregated at the PCT level, while the Supporter's table included data for 884 *FF* service users (patients), matched to 110 Support Workers and 31 Leads to whom they were uniquely attached and who took part in the research. As needed (when analysing at either the Lead's or the Supporter's level), this master table was collapsed by Supporter or Lead ID, yielding

[10] Approximately half of the sample had FQ scores but not PHQ-9, GAD-7, and IAPT Phobia Scale scores, while the other half had PHQ-9, GAD-7, and IAPT Phobia Scale scores but not FQ scores (see p.31). For this reason FQ, PHQ-9, GAD-7, and IAPT Phobia Scale scores were not included in the outcome data. WSAS, Trigger and Goal ratings were the only measures included.

respectively 110 and 31 observations (all other variables were reported as means). Analyses were conducted using STATA 11 for Windows. Figure 2-1 shows an extract of how the master table for Supporters and Leads appears (p_id = Patient ID, s_id = Supporter ID, l_id = Lead ID; the other 3 variables are randomly chosen, one for each level).

Figure 2-1. Supporter and Lead's master table



	p_id	p_hs	s_id	s_whichniceccbt	l_id	l_noreferr~s
24	19891	8	51	None	9	350
25	23585	7	164	Both FF and BtB	35	780
26	21329	2	158	Both FF and BtB	35	780
27	20262	8	158	Both FF and BtB	35	780
28	21675	8	120	Both FF and BtB	35	780
29	23568	5	72	Both FF and BtB	12	150
30	21908	7	83	None	9	350
31	22771	2	66	Both FF and BtB	19	180
32	21460	2	80	Both FF and BtB	9	350

A separate database was built to analyse the NAs' questionnaires. Patients' data (throughput and completion rates) were aggregated at PCT level. Clinical improvement was not calculated as it was considered not to relate to the NAs' activities. The NAs were not blind about throughput (it was a requirement of their job to know *FF*'s usage in the PCTs they were working with). For this reason, when analysing the association between ratings given to each PCT and throughput, throughput was calculated for the months following their participation in this study, i.e. May 2010 to January 2011.

Quantitative

Type of data used

This study used continuous and categorical data. Continuous data were represented on an interval or an ordinal scale. Number of categories in categorical data ranged from 2 to 4. Most data were collected using Likert-scales (e.g. 1=definitely not, 2=somewhat

not, 3=neither, 4=somewhat yes, 5=definitely yes). If scales had at least 5 anchor-points they were analysed as continuous variables, and if not they were treated as ranks. In some cases (e.g., "highest *FF* step reached by patients" – 0 to 8) scores were also grouped in 3 categories (1-2=early drop out, 3-6=average use, 7-8=completers) for an alternative shorter presentation of results.

Normality checks for continuous variables

Continuous variables were checked for normality both in the NA master table and in the collapsed versions by Lead and Supporter. A histogram was plotted for each continuous variable to check whether it had a normal distribution. The Shapiro-Wilk and Skewness-Kurtosis tests were also used to have a further measure of whether variables were normally distributed. Some of the variables had a U-shaped distribution (e.g., "do you guide your patients through their first login to *FF*?"). Other variables (e.g., "average support session length") had a highly skewed distribution, and any log (for positively-skewed variables) or x^3 (for negatively-skewed variables) transformations would have failed to normalise them. Only 5 variables were normally distributed in the table collapsed by Supporters, 4 in the table collapsed by Leads, and none in the NA master table. In addition, Box-Cox transformations using STATA commands `ladder` and `gladder` revealed hardly any possibility of normalising non-normal variables using several hypothetical transformations.

Type of statistical analyses used

Descriptive statistics

Data were initially described by suitable statistics (mean and standard deviation for normally-distributed continuous variables, median and interquartile range for non normally-distributed continuous variables/ranks and frequencies/ proportions for categorical variables). Mean and standard deviation were also reported for non normally-distributed continuous variables, in order to aid interpretation of results and allow comparisons with similar measures in the literature.

Preliminary analyses

In the exploratory part of the study, each individual factor was tested against each individual outcome variable in order to identify factors which associated individually with independent variables (throughput, completion rates and clinical improvement). For clinical improvement, the WSAS was chosen over the Triggers and Goals ratings as it is not only validated but is the only measure consistently available across studies previously published on *FF* (Marks, et al., 2003; Kenwright, et al., 2004; Marks, et al., 2004; Schneider, et al., 2005) and WSAS ratings are collected every 3 weeks whereas Triggers and Goal post-ratings are collected only at the end of *FF* (Step 8), so more patients will have WSAS pre-post ratings. As discussed on p.87, most continuous variables were non-normally distributed, so mainly non-parametric tests were used to quantify association between 2 continuous variables (Spearman), test differences between 2 groups (Mann-Whitney), test differences between more than 2 groups (Kruskal-Wallis), or compare groups on categorical variables (chi-square). Where both variables were continuous and normally distributed, parametric equivalents were chosen. Significance was set at .05 and all tests were two-tailed. This kind of analysis is *exploratory*, not *confirmatory*. Its results, therefore, must be interpreted with caution.

Multiple regression models

Multiple testing risks yielding spurious results (Type I error) and this can be a major threat to internal validity. For this reason, factors which significantly associated with outcome variables were included in a multiple regression analysis (correction for multiple tests was therefore deemed unnecessary). Models are fitted using backward selection to find the best set of variables which explains the variance of the dependent variables. For Supporters, a cluster-robust regression was used to account for the dependency of the observations within each team and because of its robustness against some violations of the assumptions of variance heterogeneity and departures from normality (Binder, 1983; Williams, 2000). Most variables under investigation are not normally-distributed, so the following assumptions were checked and results are displayed in Appendix III:

1. Residuals are normally distributed (box plot of residuals)
2. Residuals have constant variance (plot of fitted values against residuals)
3. Linear relationship between x_i and y (partial residual plots)

4. Influential cases (plot of leverage vs. squared residuals)
5. Multi-collinearity (Variance Inflation Factor)

Qualitative

Transcription

Digital recordings of the interviews were transcribed by 2 research assistants. Transcribing necessarily involves some interpretation (Bailey, 2008). Interviews were transcribed verbatim but minor adjustments were made to improve readability (Lapadat, 2000). For instance, occasional mispronunciations/grammatical errors were rectified to facilitate reading. Non-verbal expressions (e.g. laughs, sighs, etc...) were transcribed (McLellan, MacQueen, & Neidig, 2003), while voice intonations were not. The first part of the interview (checking the Leads' answers on the questionnaire) was not transcribed. Simple statements about aspects specifically addressed by the questionnaire were not coded (e.g. if the service accepted self-referrals). However, if the Lead expanded on those aspects (e.g. gave reasons *why* they did not accept self-referrals) these segments were coded.

The PI prepared a standard transcript format detailing the interviewee's ID (to protect anonymity), gender, job title, mode of the interview (face to face or phone), date, interviewer and reviewer's name. Upon completion of each transcription, the PI personally reviewed it. During the review he checked for accuracy (by listening to the audio recording) and made necessary amendments. Reviewing the transcripts was an important way of becoming immersed in the data before starting the coding.

Coding and analysis

Coding was performed by the PI. Although this might be a limitation (Greenhalgh & Taylor, 1997), some authors argued that this approach is preferable when a close relationship with the participants is critical to understand the depth of the data collected, as was considered to be the case in this study (Bradley, Curry, & Devers, 2007). Limited resources prevented the addition of another researcher to independently analyse the data. Full disclosure of potential bias (see p.14) is especially important in this situation (*ibid.*).

Thematic analysis was the approach chosen to code and analyse the transcripts. Thematic analysis has been defined as a "process for encoding qualitative information" (Boyatzis, 1998, p.4). It involves the ability to recognise patterns in seemingly-random data, and the capacity to interpret the meaning of such patterns in a coherent way. Thematic analysis can be either data-driven or theory-driven. In the first case, the codes are inductively generated from the data. The researcher conducting the analysis processes the raw material and identifies the patterns based on their perceived relevance to the research question of the study.

Coding always involves an act of interpretation, so, themes are presented not as 'emerging' from the data but rather as the result of the judgment of the researcher, who identifies them within the transcripts. The richness of a codable moment can't be quantified using a numerical procedure (e.g. frequency counts). It is up to the researcher to decide the "keyness" of each potential theme based on his/her judgment.

A deductive approach is used when the analysis is driven by a pre-existing theoretical model which serves as a coding framework. Using this approach, coded chunks of text are assigned to each item of the framework as appropriate.

In this dissertation, an inductive approach was chosen and a new coding frame was developed from scratch, as this allowed a richer representation of the main themes found in the data, without the limitations of a pre-existing theoretical framework, especially given that no specific frameworks have been developed yet to study the implementation of CCBT in routine care. Anchoring is a commonly-used technique for generating the code (Boyatzis, 1998). It consists in selecting a small sub-sample of interviews through a criterion which generates two highly-contrasting groups. The code is inductively developed and validated on the basis of its ability to reflect the differences between the two groups. The final code is then applied to the whole sample, which normally is distinguished by the same criterion used to develop the code. In the present study anchoring was not performed, as participants were not sampled from 2 contrasting groups (high vs. low *FF* throughput).

The analysis was performed in six steps as described by Braun & Clarke (2006). After familiarising himself with the data by listening to the audio recordings and checking the transcripts for accuracy (1), the PI systematically scanned the entire dataset and generated an initial list of candidate codes (2). Several iterative passes were conducted to ensure trustworthiness of coding. *Consistency of judgment* (Boyatzis, 1998) was the

cardinal principle during this phase of the analysis. The *unit of analysis* was the interview and *coding units* ranged from part of a sentence to an entire paragraph. Only manifest (semantic) content was coded. When a coding unit related to more than one code, it was coded twice (or, rarely, three times). Following generation of the initial codes, the candidate items were collated into logical themes (3) and each theme was reviewed for consistency (4), both internally and in relation to the other themes in the framework. This step was guided by Patton's (2002) principle of maximising *internal homogeneity* (within the theme) and *external heterogeneity* (between themes). Incoherent themes were discarded (or broken down/merged where feasible) and relationships between themes identified. Lastly, each final theme was labelled (5) and the report was produced (6).

A narrative approach was chosen for presentation of the results. A more frequent theme does not necessarily mean a more important theme. Frequency tables were therefore not used in reporting the themes from the interviews, as this would fail to capture the true *relevance* of each theme, and would not be able to highlight the numerous relationships among various factors. Representative quotes illustrated relevant themes. To protect anonymity, the interviewee's initials (which appeared on the original transcript) were replaced by L (for Lead) or N (for Nurse Advisor), followed by a numeric code to distinguish the different interviewees. The interviewer was identified by his initials (LP). Coding and analysis of the data were performed in NVivo 9 for Windows.

Greenhalgh et al's. (2005) 9-dimension model for the diffusion of innovations in health care organisations (see Figure 1-1 on p.44) was not used as the theoretical framework for the analysis of the interviews but will be used for discussion of the results. Previous qualitative research used part of this model to study the adoption of innovations in primary care (Carlfjord, Lindberg, Bendtsen, Nilsen, & Andersson, 2010). In the present study, however, all 9 categories will be considered.

Definition of completers

A "completer" is a *FF* patient who reached at least Step 7 (of the 9 steps). This definition is chosen because a patient who reached *FF*'s Step 7 had already seen much of *FF*'s exposure-therapy guidance. In Step 8 patients are asked to rate their

triggers/goals, can add another trigger/goal, and see a few other options without being introduced to any further clinical content. Step 9, Troubleshooting, is an optional step that can be accessed after Step 8.

All patients who gave at least 2 sets of ratings (1 pre and 1 post) are included in the analysis, regardless of which Step they reached. Patients' outcome data are analysed using the Last Observation Carried Forward (LOCF) method.

Ethical issues

Ethical approval

The NHS REC (Research Ethics Committee) form was submitted to the East London and the City 1 REC (ref: 09/H0703/39) which discussed it on 2 April 2009. The REC said the project "*is considered to be market research and should not be managed as research. Therefore it does not require ethical review by a NHS Research Ethics Committee or approval from the NHS R&D office*". However, LP's personal tutor at the Health Services and Population Research Department at the Institute of Psychiatry advised that even if NHS Ethics was deemed unnecessary, the project needed KCL Ethics approval anyway, which was obtained on 22nd January 2010 (ref: PNM/09/10-21). Enrolment in this research poses no significant risks to participants. All participants will be informed of the research findings.

Identifiable patients' data

LP had no direct contact with patients and collected no identifiable data from them. All dependent variables were extracted from the *PPMS* in anonymised format.

3. RESULTS

Description of the sample

Of the 61 English PCTs which purchased *FF* licences, 58 had implemented *FF* and used it for at least 6 months when the research began (see flowchart in Figure 3-1 below). All 88 Service Providers within the 58 PCTs were asked by email, phone, or face to face whether they agreed to participate in this research. Two could not be contacted, 3 did not reply and 9 could not participate (e.g., all staff had left the posts, Lead was on long-term sick leave, ...). Fourteen teams declined participation. The most common reason (50%) given for not participating was lack of time. Other reasons were difficulty obtaining the data, little use of CCBT, and concerns about releasing patients' confidential information (despite data being anonymised). One Service Provider did not participate because the Service Manager perceived the research as being commercial. Another 23 sites agreed in principle to participate, but did not formally enrol within the data-collection period (from 22nd February 2010 until 4th November 2010), and were therefore excluded.

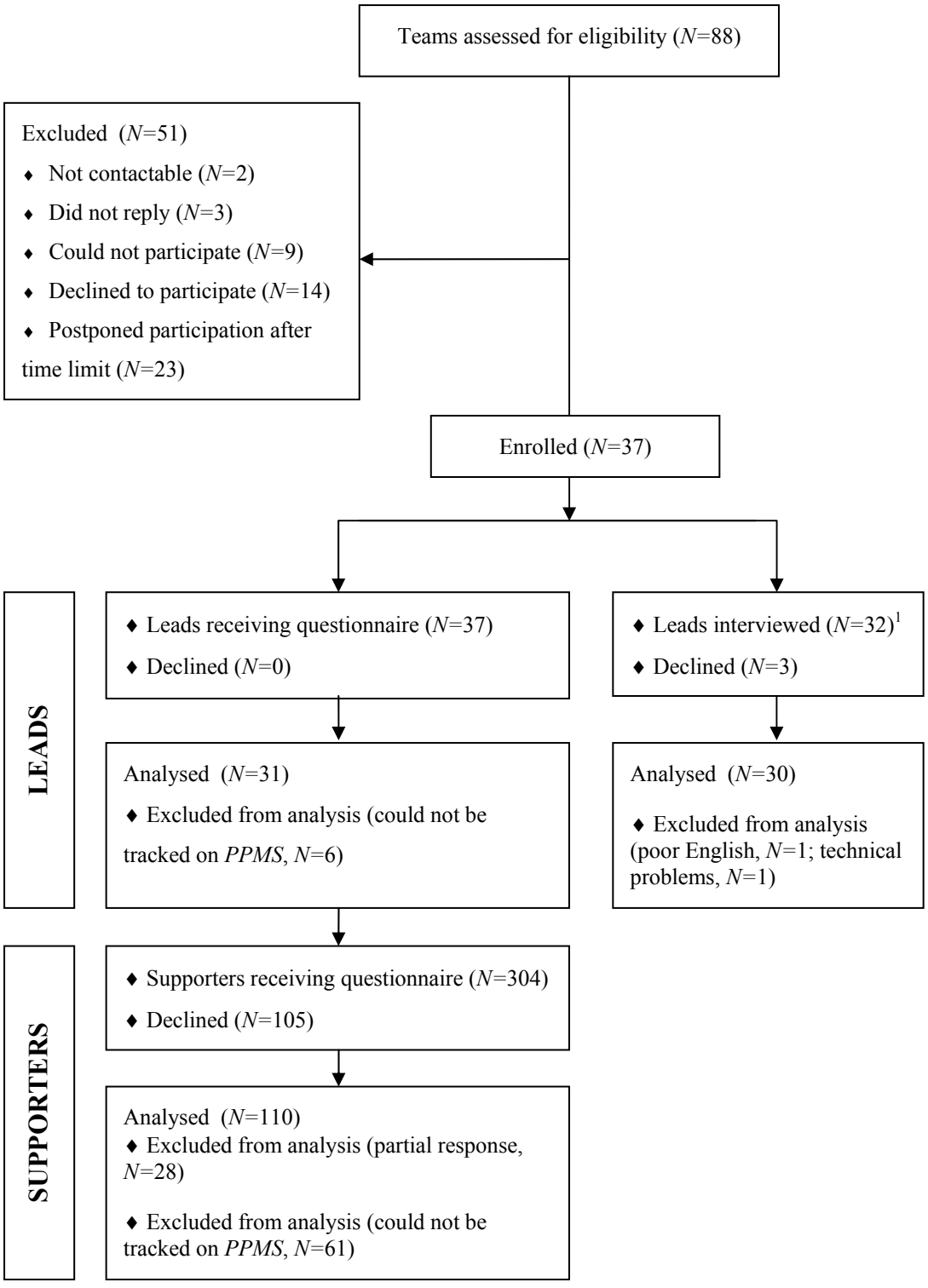
The remaining 37 teams took part in the study, representing 30 PCTs (for a list of participating PCTs, see Appendix I). For each Service Provider, the PI identified a Lead. Normally, they were Service Managers or Clinical Leads. Occasionally, however, a senior Mental Health Worker who had overseen the *FF* service since its start acted as the Lead. All 37 Leads returned a "Lead's questionnaire", 32 of whom agreed to be interviewed by phone or face to face.

Within the 37 participating teams, 304 Supporters were responsible for delivering *FF* to patients. All 304 were emailed a "Supporter's questionnaire", from whom 171 (56%) completed questionnaires were received.

Six Nurse Advisors participated between 22nd March and 2nd June 2010. They were qualified Nurses with experience of working in the NHS but no previous experience of CCBT. Because their contracts with CCBT Ltd expired at the end of June 2010, they could not be interviewed after data collection with PCT staff was completed. For this reason, the 6 Nurse Advisors returned a questionnaire about all the PCTs they were

dealing with (*N*=39) regardless of whether the PCTs had participated or not. The 6 all consented to be interviewed by phone or face to face. In November 2010, data pertaining to non-participating PCTs were removed. Questions in the Nurse Advisors' questionnaire were about PCTs, not Service Providers. For this reason, Nurse Advisors are not included in the flowchart below and their data will be analysed separately.

Figure 3-1. Flow of participants



[11] Two interviewees were Leads for 2 services studied during the transition to IAPT status. They were therefore treated as 2 different teams (pre-IAPT and IAPT) but headed by the same Lead.

Quantitative findings

Patients' outcome data

From 18th July 2006 until 31st July 2010, a total of 3,528 patients used *FF* in 58 PCTs and 88 Service Providers in the NHS across England. By selecting only patients who unequivocally had a participating Supporter and Service Provider, 884 patients were included in the analysis. Mean throughput (average number of *FF* patients beginning treatment each month), completion rates (% of patients reaching at least Step 7) and clinical improvement (WSAS recovery rates) were calculated for each Supporter and each Service Provider. The mean step reached by patients was 4.2 (*SD*=2.8, *Mdn*=3, *IQR*=5). Most patients either dropped out by Step 2 (50%) or concluded treatment (34%). Table 3-1 shows the distribution of patients for each step (Step 9 is excluded as it is optional).

Table 3-1. Patients' progression through *FF*

	N	*%*	Highest step reached	*N*	*%*	*Cumulative %*
Early drop out	441	*50*	1	143	*16*	*16*
			2	298	*34*	*50*
Average	150	*16*	3	12	*1*	*51*
			4	37	*4*	*55*
			5	63	*7*	*62*
			6	38	*4*	*66*
Completers	293	*34*	7	85	*10*	*76*
			8	208	*24*	*100*
Total	884	*100*		884	*100*	*100*

Clinical outcomes for *FF* patients are reported in Table 3-2, describing pre- and post-treatment scores, 95% confidence intervals and effect sizes for all patients with available post-treatment data.

Table 3-2. Self-rated clinical outcome

Scale	*N*	Pre-treatment		Post-treatment		Pre-post difference[12]		Effect size[13]
		M	*SD*	*M*	*SD*	*M*	*95% CI*	
WSAS	428	16.1	*9.9*	13.2	*10.3*	3**	*2.4-3.6*	0.3
Family & relationships	428	3	*2.6*	2.5	*2.5*	0.5**	*0.3-0.6*	0.2
Home management	428	2.5	*2.2*	2	*2.1*	0.5**	*0.3-0.7*	0.2
Private leisure	428	2.6	*2.4*	2.1	*2.3*	0.5**	*0.3-0.7*	0.2
Social leisure	428	4.5	*2.6*	3.4	*2.5*	1**	*0.9-1.2*	0.4
Work	428	3.7	*2.7*	3.2	*2.7*	0.5**	*0.3-0.7*	0.2
Trigger[14]	180	6.6	*1.4*	3.5	*2.3*	3.2**	*2.8-3.5*	2.2
Goal	128	6	*1.6*	3.1	*2.1*	3**	*2.6-3.4*	1.8

For WSAS, recovery rates were calculated (Richards & Suckling, 2009). This approach was preferred to the calculation of clinical significance (Jacobson & Truax, 1991) to attempt a comparison with results from IAPT sites, although those were calculated on PHQ-9 and GAD-7 (Gyani, Shafran, Layard, & Clark, 2011).

Table 3-3. Work and Social Adjustment Scale (WSAS) recovery rates

	Yes	*%*	No	*%*
WSAS total	99	*23*	323	*77*
Family and relationships	108	*26*	305	*74*
Home management	126	*31*	282	*69*
Private leisure	128	*32*	275	*68*
Social leisure	136	*33*	282	*67*
Work	112	*27*	299	*73*
Trigger	102	*57*	77	*43*
Goal	75	*59*	52	*41*

Suitability for *FF* was determined for 331 patients according to the definition on p.58. Two-hundred and one patients (61%) were suitable, while 130 (39%) were unsuitable. Suitability was not associated with improvement (5th hypothesis) as measured by the WSAS recovery rates, χ^2 (1, N=310)=.03, p=.87. Filtering by caseness including only patients who scored >15 on WSAS pre-score (Marks, personal communication, 12/07/2011) does not yield a significant result, χ^2 (1, N=164)=.003, p=.95.

[12] Significance of change on 2-tailed paired t-test: ** $p < 0.001$.
[13] Formula: (pre-treatment mean – post-treatment mean)/pre-treatment *SD*; 0.8 upwards usually regarded as clinically significant (cf. Marks, et al., 2004)..
[14] Reported as "Main Problem" in *ibid*. and Schneider, et al. (2005)

Supporters

Three-hundred and four Supporters worked for Service Providers whose Lead consented to take part in the research, and they were emailed a web-based questionnaire through a link on an invitation email. By 4th November 2010, 171 (56%) Supporters returned a completed questionnaire. Table 3-4 details return rates.

Table 3-4. Supporters' questionnaires: return rates

	No. of reminders	*N* questionnaires	*%*
Complete			
	1	85	*28*
	2	38	*13*
	3	23	*8*
	4	14	*5*
	5	6	*2*
	6	1	*0*
	7	4	*1*
	Total	171	*56*
Incomplete		32	*11*
No response		101	*33*
Grand total		304	*100*

Background information

Supporters were fairly new to their job, with a mean of 15 months in their current post (*SD*=8.4, *Mdn*=13, *IQR*=9). A few workers (*N*=19, 17%) had used CCBT in a previous post, mostly *FF* and *BtB*. CCBT packages in previous posts were used for a mean of 15 months, though this varied significantly (*SD*=10.4).

Use of commercial packages (FF/BtB) in current post

Most of the supporters (*N*=78, 71%) had used both *FF* and *BtB* at least once with patients in their current post, while 24 (22%) had used *FF* only. Despite 2 workers reporting having used *BtB* only and 6 workers neither *FF* nor *BtB*, they had an active Account on *PPMS* (linked to their current organisation) and they had *FF* patients attached to them, so they were included in the analysis. Workers had used *FF* for a mean of 12 months (*SD*=6.5, *Mdn*=10, *IQR*=9) and the reported mean number of patients set up each month was 2 (*SD*=2.7, *Mdn*=1, *IQR*=1).

Support

The first support question in the questionnaire asked workers how they usually supported *FF* patients. Almost half supported patients only by phone. Combining the first 2 categories together ("support only or mostly via phone") this percentage rises to 80%.

Table 3-5. Usual support modality for *FF* patients

	N	*%*
Only by phone	48	*47*
Mostly by phone	33	*33*
50% - 50%	12	*12*
Mostly face to face	7	*7*
Only face to face	1	*1*
Total	101	*100*

When asked if they normally scheduled support sessions in advance, supporters gave a mean score of 4.1 on a Likert scale from 1 to 5 (1=never, 2=rarely, 3=occasionally, 4=usually, 5=always; *SD*=1.1, *Mdn*=4, *IQR*=1).

FF patients were supported for a mean of 5.5 sessions over the course of their treatment (*SD*=3.4) and each support session lasted a mean of 17 minutes per patient (*SD*=9.9, *Mdn*=15, *IQR*=10). The time taken to support a *FF* patient was overall in line with the time the supporter expected it to last (*M*=3, *SD*=0.9). This variable was measured on a 1-5 Likert scale where 1=definitely less than what I expected and 5=definitely more than I expected.

Support was offered over a mean of 11 weeks with huge variability within the sample (*SD*=11.8, *Mdn*=10, *IQR*=4). When asked whether they guided their *FF* patients through their first login (by phone or face to face), workers rated a mean of 3.2 on a Likert 1-5 scale (1=never, 2=rarely, 3=occasionally, 4=usually, 5=always; *SD*=1.5, *Mdn*=3, *IQR*=3).

Preference

Preference ratings for *FF*, CCBT in general and other treatments were collected within the questionnaire. When asked how much they liked *FF*, workers rated a mean of 3.4 on a 1-5 Likert scale (1=definitely not, 2=somehow not, 3=neither, 4=somehow yes, 5=definitely yes; *SD*=1.1). Slightly more positive results were reported for how keen they would be to recommend *FF* to other patients (*M*=3.8, *SD*=1.1, *Mdn*=4, *IQR*=2).

In order to compare CCBT as a treatment modality to other treatments delivered by the supporters, they were asked "please list the following treatments in order of your preference". Table 3-6 shows the results, sorted by median. If the worker delivered none of the treatments listed, they could click on "*N*/A" (not available) and were excluded from Table 3-6 below.

Table 3-6. Preferred treatments

	N	Median	*IQR*
Individual face-to-face CBT	66	1	1
Behavioural activation	98	2	1
Guided self-help	105	2	2
Psycho-educational groups	81	3	2
CCBT	107	4	3
Pure self-help	94	5	2

Usage

This section of the questionnaire asked who made the first step in deciding treatment and whether *FF* was used together with other treatments. Table 3-7 shows the results. Most supporters (69%) said they took the first step together with their patients in deciding which treatment was best, with a tangible proportion (22%) saying the supporters themselves mostly took the first step.

Table 3-7. Who makes the first step in deciding treatment?

	N	*%*
The supporter	0	*0*
Mostly the supporter	24	*22*
Supporter and worker together	75	*69*
Mostly the patient	7	*6*
The patient	3	*3*
Total	109	*100*

Just under a third of supporters used *FF* occasionally with other treatments, with slightly fewer saying "rarely" (26%) or "never" (28%; Table 3-8 below).

Table 3-8. Use *FF* with other treatments

	N	*%*
Always	5	*5*
Usually	10	*10*
Occasionally	33	*32*
Rarely	27	*26*
Never (CCBT as only intervention)	29	*28*
Total	104	*100*

Among supporters who responded affirmatively to the above question ("always" to "rarely"), 4 (6%) reported using *FF* before other treatments, 12 (19%) while using other treatments, while most (*N*=47, 75%) offered *FF* after they had used other interventions with patients.

Training

Supporters reported high satisfaction with *FF* training, with a mean score of 4 on a 1-5 Likert scale (1=definitely not, 2=somehow not, 3=neither, 4=somehow yes, 5=definitely yes; *SD*=1, *Mdn*=4, *IQR*=1) and a moderately high fit with their professional training (*M*=3.5, *SD*=1, *Mdn*=4, *IQR*=1). Timing of supporters' *FF* training: before supporters started their professional training, 17% (*N*=16), at the start of their professional training 9% (*N*=8), half way through their professional training 26% (*N*=24), at the end of their professional training 38% (*N*=35); after they had completed their professional training 10% (*N*=9). Eighteen supporters (19%) admitted having not gone through *FF* as a stooge patient, 42 (44%) having done it in part, and 36 (38%) having gone through *FF* completely.

Workshops

FF workshops were hands-on meetings when the service had been live for at least 3 months. The workshops aimed to increase the workers' confidence and address teething problems with the new technology. Most of the workers (*N*=61, 56%) did not attend any *FF* workshop. Those who attended (*N*=49, 45%) reported moderate satisfaction with it (*M*=3.8, *SD*=0.9, *Mdn*=4, *IQR*=0).

FF version

About one third (*N*=33, 32%) of the sample began using *FF* version 1.0 with patients. More workers (*N*=44, 43%) started by using *FF* version 1.5 (same treatment structure as version 1.0 but new more-contemporary look). Twenty-five workers (25%) did not know which version they used first with patients, despite 2 screenshots of each version being displayed on the questionnaire.

Statements about FF

This part of the questionnaire included 10 statements describing issues/opinions often discussed by workers during training sessions.

Table 3-9. Supporters' statements about *FF*

		N	*%*
My patients feel empowered by using it	No	15	*16*
	Neither	34	*37*
	Yes	43	*47*
My patients feel they've been given a second-class therapy	No	30	*34*
	Neither	22	*25*
	Yes	35	*40*
My patients prefer other treatments	No	6	*6*
	Neither	18	*17*
	Yes	80	*77*
It makes my professional life easier	No	35	*33*
	Neither	30	*29*
	Yes	40	*38*
I can't find suitable patients for it	No	47	*45*
	Neither	15	*14*
	Yes	42	*40*
NICE approval is an important factor in deciding whether to recommend it to my patients	No	9	*9*
	Neither	17	*16*
	Yes	78	*75*
My patients had technical difficulties using it	No	39	*39*
	Neither	12	*12*
	Yes	48	*48*
I had technical difficulties supporting patients using it	No	62	*61*
	Neither	11	*11*
	Yes	28	*28*
I feel deskilled using it	No	71	*68*
	Neither	16	*15*
	Yes	17	*16*
It fits well in my organisation	No	18	*17*
	Neither	20	*19*
	Yes	68	*64*

Leads

All 88 Service Providers delivering *FF* in the NHS were approached and its Lead (usually Service Manager or Clinical Lead) was asked whether s/he wanted to take part in the research. Thirty-seven Leads consented and all of them (100%) returned a completed Lead's questionnaire.

Background info

Leads reported their job title and how many months they had been in their current post (*M*=36, *SD*=32, *Mdn*=24, *IQR*=46). Most of the Leads described their past experience as "both managerial and clinical" (*N*=18, 58%), while few described it as "other" (*N*=3, 10%). The remaining participants were equally split in "mainly managerial" (*N*=5, 16%) or "mainly clinical" (*N*=5, 16%). Independently of the questionnaire, the PI also assessed how many Service Providers were IAPT sites. Fifteen sites (41%) had never been IAPT, while the remaining sites either were IAPT (*N*=16, 43%) or were not IAPT when they began to deliver *FF* but became IAPT by the time they took part in the research (*N*=6, 16%). Twenty-eight (76%) Service Providers were NHS statutory services, while 9 (24%) were from the third sector.

Referrers

All referrers listed in the Technical Guidance for IAPT Key Performance Indicators document (Improving Access to Psychological Therapies, 2009) were included. Table 3-10 shows frequencies and percentages of referrers services could accept referrals from.

Table 3-10. Referrers

	N	*%*
General Medical Practitioner	28	*90*
Self	18	*58*
Local Authority Social Services	15	*48*
A&E Department	13	*42*
Employer	11	*35*
Education Service	9	*29*
Police	10	*32*
Other clinical specialty	20	*65*
Carer	9	*29*
Courts	6	*19*
Probation Service	8	*26*
Job centre plus	14	*45*
Voluntary sector organisation	16	*52*
Community/practice nurse/health visitor	23	*74*
Other	7	*23*

Referral pathway

Most services first screened patients initially and later assessed them (*N*=24, 77%). In contrast, just 2 services screened patients only (6%) and 5 services assessed them only (16%).

Screening/Assessment

The person normally screening patients had been in post for a mean of 25 months (*SD*=21, *Mdn*=18, *IQR*=12). Similar results were found for the person normally assessing patients (*M*=25, *SD*=19, *Mdn*=18, *IQR*=19). Mean duration of screening was 17 minutes (*SD*=13, *Mdn*=11, *IQR*=15), while mean duration of assessment was substantially longer (*M*=49 mins, *SD*=18). Table 3-11 details the usual means of communications and tools used for screening and assessing patients.

Table 3-11. Screening/assessment procedures

Usual means of communication	Screening		Assessment	
	N	*%*	*N*	*%*
Face to face	6	*19*	25	*81*
Phone	15	*48*	9	*29*
Other	10	*32*	0	*0*
Tools used				
IAPT Minimum Data Set	8	*26*	22	*71*
PHQ-9 only	10	*32*	3	*10*
GAD-7 only	10	*32*	3	*10*
IAPT Phobia Scale only	2	*6*	1	*3*
FF Screening Questionnaire	2	*6*	2	*6*
CORE (any)	2	*6*	3	*10*
Clinical judgment	14	*45*	14	*45*
Other	10	*32*	7	*23*

Services answering "other" to the usual means of communication for screening mainly reported doing screening "on paper", i.e. triage based on the information received at referral. No service reported using Email or SMS either for screening or assessment.

Service metrics

This section of the questionnaire estimated several service metrics of the provider under study. Leads had a mean of 276 referrals to their service per month, though this varied greatly (*SD*=250, *Mdn*=180, *IQR*=215). Two services reported a mean of as many as 1,000 referrals per month, while one service reported as few as 12 referrals per month. Across all services, a mean of 86% of patients were considered suitable for the service (*SD*=.11, *Mdn*=.9, *IQR*=.15).

From referral being made, 1 day on average passed before the referral was received (*SD*=1.5, *Mdn*=1, *IQR*=2), 9 days before patients were screened (*SD*=16, *Mdn*=3, *IQR*=6), 34 before they were assessed (*SD*=33, *Mdn*=27, *IQR*=30.5), and respectively 41 (*SD*=34, *Mdn*=33, *IQR*=39) and 116 (*SD*=100, *Mdn*=90, *IQR*=50) days before patients could begin either the Step 2 or Step 3 interventions they were allocated to. The large SDs indicate significant variability across services - the most efficient service reported a mean of 3 days delay between receiving the referral and treatment start for Step 2 (voluntary sector, CCBT-only service), while the least efficient reported an average 168 days delay for the same measure (statutory service, IAPT site).

CCBT was mostly considered as a treatment option during assessment (*N*=26, 84%). Most services also considered it at screening (*N*=18, 58%) and referral (*N*=15, 48%)[15].

The final question from this section of the questionnaire asked the percentage of staff turnover over the last year. Leads reported a mean turnover of 15% (*SD*=.24, *Mdn*=.1, *IQR*=.15). Twelve Leads reported no turnover in their staff over the last year.

Treatments offered

The next section of the questionnaire asked which self-help books and CCBT packages the service provided. Table 3-12 reports the books available amongst the teams surveyed, sorted by popularity.

Table 3-12. Self-help books offered by the service

Title (author)	*N*	*%*
Northumberland series	20	*65*
Overcoming Anxiety (Williams)	18	*58*
Overcoming Depression and Low Mood (Williams)	17	*55*
Mind over Mood (Padesky)	16	*52*
Self-help material developed in-house	15	*48*
Overcoming Depression (Gilbert)	14	*45*
Overcoming Low Self-Esteem (Fennell)	14	*45*
Overcoming Social Anxiety and Shyness (Butler)	13	*42*
Overcoming Anxiety (Kennerley)	12	*39*
Overcoming Panic (Silove, Manacavasagar)	11	*35*
Oxford Cognitive Therapy Centre booklets	9	*29*
Feeling Good (Burns)	8	*26*
An Introduction to Coping with Health Anxiety (Hogan, Young)	7	*23*
An Introduction to Coping with Panic (Young)	7	*23*
An Introduction to Coping with Phobias (Hogan)	7	*23*
Living Life to the Full coloured little booklets (Williams)	7	*23*
An Introduction to Coping with Anxiety (Hogan, Brosan)	6	*19*
An Introduction to Coping with Depression (Brosan, Hogan)	6	*19*
An Introduction to Coping with OCD (Brosan)	6	*19*
Other	6	*19*
None of the above	5	*16*
The Depression Helpbook (Katon)	5	*16*
A Recovery Programme for Depression (Lovell, Richards)	4	*13*
Beating Depression (Cembrowicz)	3	*10*
Living with Fear (Marks)	3	*10*
Out of your Prison (Rowe)	3	*10*

[15] CCBT being considered at referral indicated that the referrer explicitly mentioned CCBT as the treatment for which the patient was referred.

Out of the 24 titles listed in the questionnaire, each team had a mean of 7 self-help books available; differences among teams were noteworthy (*SD*=6, *Mdn*=5, *IQR*=9). Five teams had no titles available (mainly CCBT-only services) while one team had as many as 23 titles.

In terms of CCBT packages available to patients (either at present or in the past), 27 teams (87%) used/had used Beating the Blues™, 9 (29%) Living Life to the Full (free version), none Living Life to the Full Interactive (paid version), and 2 (6%) MoodGym. All teams used or had used *FF* (the main inclusion criteria for the study).

Expectations and Statements about FF

Each Lead was asked about acceptable and excellent results from a CCBT package, in terms of expected throughput, completion rates and clinical improvement. This question explored whether there was a consensus. The huge variability across measures means there was no consensus. For instance, "excellent throughput" ranged from 5 to 100 patients a month, "excellent completion rates" ranged from 20 to 100%, and "excellent clinical improvement" (indicated by the % drop on the relevant measure – i.e. PHQ-9 for a CCBT depression package) ranged again from 20 to 100%.

The final section of the Lead's questionnaire included 3 statements similar to those asked of Supporters but made relevant to the Leads (Table 3-13).

Table 3-13. Leads' statements about *FF*

		N	*%*
It helps achieving my targets	No	9	*31*
	Neither	5	*17*
	Yes	15	*52*
NICE approval is an important factor in deciding whether to recommend it to my patients	No	0	*0*
	Neither	1	*3*
	Yes	29	*97*
It fits well in my organisation	No	6	*19*
	Neither	6	*19*
	Yes	19	*62*

Nurse Advisors

Activity (training sessions, workshops, visits to GP surgeries)

All 6 Nurse Advisors (NAs; 100%) returned a completed questionnaire. NAs reported a mean of 0.7 training sessions per PCT in the first quarter (*SD*=1.4, *Mdn*=0, *IQR*=1, min=0, max=6), 1 in the second quarter (*SD*=1.3, *Mdn*=0, *IQR*=1, min=0, max=5) and 0.4 in the third quarter (*SD*=.7, *Mdn*=0, *IQR*=1, min=0, max=2). Compared to training sessions, workshops were less frequent in the first quarter (*M*=.1, *SD*=.5, *Mdn*=0, *IQR*=0, min=0, max=2), similarly frequent in the second quarter (*M*=.7, *SD*=1.2, *Mdn*=0, *IQR*=1, min=0, max=4) and slightly more frequent in the third quarter (*M*=.5 *SD*=.9, *Mdn*=0, *IQR*=1, min=0, max=3). NAs visited on average 10% of surgeries in the first quarter (*SD*=.2, *Mdn*=0, *IQR*=.13, min=0, max=.83), 15% in the second quarter (*SD*=.23, *Mdn*=0, *IQR*=.29, min=0, max=.75) and only 2% in the third quarter (*SD*=.04, *Mdn*=0, *IQR*=.5, min=0, max=.13). All three kinds of activities peaked in the 2nd quarter, followed by a decrease in the third quarter (surgery visits were almost discontinued in the last 3 months). This was due to new responsibilities assigned to the NAs by their manager and a shift in the focus of their work.

Ratings

Table 3-14 summarises NAs' ratings variables in the *implementation process* category within Greenhalgh et al's (2005) model.

Table 3-14. Nurse Advisors' ratings

	N	*M*	*SD*	*Mdn*	*IQR*
Did the TRAINING SESSION(S) with this PCT go well?	19	1.2	*1.1*	2	*2*
Did the WORKSHOP(S) with this PCT go well?	8	1.9	*0.4*	2	*0*
Did the GP VISITS with this PCT go well?	10	1.2	*0.8*	1	*1*
Was the PCT's organisational structure flexible and adaptive?	22	0.3	*1.6*	1	*3*
Did the PCT's organisational structure support devolved decision making?	22	0.5	*1.5*	1	*3*
Was the PCT's top management (commissioners) supportive?	9	1.0	*1.3*	1	*1*
Was there a continuing commitment to implementation in the PCT?	22	0.4	*1.6*	1	*3*
Was *FF* aligned with the prior goals of middle (clinical leads/service managers) and top (commissioners) management in the PCT?	21	0.8	*1.3*	1	*2*
Was the clinical lead/service manager involved?	22	1.1	*1.3*	2	*1*
Were the supporters involved?	22	0.9	*1.5*	2	*3*
Were funding agreements sorted out smoothly so that they did not impede your activities?	12	1.7	*0.8*	2	*0*
Were funding agreements sorted out smoothly so that they did not impede your activities?	21	0.8	*1.4*	1	*2*
Were the PCT staff you worked with part of an active extra-organisational network?	15	0.2	*1.4*	0	*3*
Did you receive positive feedback about *FF* in general (not about your performance)?	22	0.4	*1.4*	1	*3*

Factors influencing patients' outcomes

Due to the many variables considered, for ease of reading only significant factors are reported below.

Supporters

The master table for Supporters and Leads (p.85) was collapsed by Supporters' ID, yielding 110 observations. Mean throughput (no. of *FF* patients starting treatment each month) and completion rates (% of patients reaching at least Step 7) were calculated for each worker. Clinical improvement was not analysed as very few Supporters had sufficient patients with both pre and post scores.

Throughput

Preliminary analyses

Supporters who had used any CCBT in a previous post were less likely to use *FF* in the current post, U=2.14, N=110, p=.03, as were supporters who used *FF* in a previous post, U=2.14, N=110, p=.03. The number of weeks *FF* patients were usually supported was found to associate with Supporters' throughput, ρ=.27, N=102, p=.01. Supporters who were more keen to recommend *FF* to their patients used it more, ρ=.21, N=107, p=.03, as were Supporters who preferred CCBT (ρ=-.25, N=107, p=.01) and pure self-help (ρ=-.23, N=94, p=.03) as treatment modalities[16]. Workers who combined *FF* with other treatments used the package more (ρ=-.22, N=104, p=.03)[17].

Participants reporting that their patients preferred other treatments were less likely to use *FF*, $H(2)$=6.87, p=.03 (post-hoc comparisons using the Mann-Whitney test revealed a significant difference between participants answering "yes" and those answering "no", U=2.43, N=86, p=.01). Similarly, workers reporting that they could not find suitable patients for *FF* were less likely to use it, $H(2)$=7.23, p=.03 (post-hoc comparisons using

[16] Higher ranking means lower score (1=first preferred treatment).
[17] Measured on Likert scale "1=Always to 5=Never".

the Mann-Whitney test revealed a significant difference between participants answering "yes" and those answering "no", U=2.52, N=89, p=.01).

Multiple regression

Using backward selection and entering in the full model all 9 significant factors above[18], a significant cluster-robust multiple regression model with 3 factors emerged, $F(3, 28)=14.19$, $p=<.001$, $R^2=.23$. The STATA regression output below (Table 3-15) shows Beta coefficients for each covariate. Supporters who used CCBT in a previous post used *FF* less in their current post, while workers who used *FF* with other treatments (in their current post) and had a preference for pure self-help used *FF* more.

Table 3-15. Factors influencing Supporters' throughput

Outcome variable: s_tplog (Supporters' throughput - log), n=89

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
Used CCBT in a previous post per unit	-0.945	0.259	0.001	(-1.476 to -0.414)
Preference for pure self-help per unit	-0.157	0.057	0.011	(-0.274 to -0.039)
Use FF with other treatments per unit	-0.324	0.095	0.002	(-0.517 to -0.130)
Constant	1.273	0.397	0.003	(0.460 to 2.085)

Completion rates

Preliminary analyses

Supporters with less than 5 *FF* patients in total (N=50, 45%) were removed from the analysis, yielding 60 observations. Among workers using *FF* in combination with other treatments (N=37), the order in which it was offered[19] had a significant main effect, $F(2, 34)=3.86$, p=.03. Post-hoc comparisons using the Bonferroni method revealed that Supporters offering *FF before* other interventions had higher completion rates (M=.41, SD=.20) than those offering it *while* giving other interventions (M=.20, SD=.14). The

[18] Box plot of residuals of the original Supporters' throughput variable shows 2 highly-influential outliers (see details on p.219 in Appendix III). The log transformed variable is therefore used.
[19] Measured on Likert scale "1=After other interventions, 2=While giving other interventions, 3=Before other interventions".

other factor which significantly associated with Supporters' completion rates was the statement "my patients feel they've been given a 2nd class treatment", $F(2, 48)=6.37$, $p=.004$. Bonferroni post-hoc comparisons showed that Supporters answering "no" had significantly higher completion rates ($M=.45$, $SD=.12$) than those answering "yes" ($M=.26$, $SD=.20$). None of the support variables (4th hypothesis) were significant.

Multiple regression

The backward selection procedure included both variables in the final regression model, $F(2, 15)=21.93$, $p=<.001$, $R^2=.39$.

Table 3-16. Factors influencing Supporters' completion rates

Outcome variable: s_cr (Supporters' completion rates), n=32

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
When use FF with other treatments per unit	0.186	0.053	0.003	(0.073 to 0.298)
Patients feel given a 2nd class therapy per unit	-0.096	0.026	0.002	(-0.151 to -0.042)
Constant	0.029	0.153	0.853	(-0.296 to 0.354)

Leads

The master table for Supporters and Leads was this time collapsed by Lead's ID, yielding 31 observations. Mean throughput (average number of *FF* patients beginning treatment each month), completion rates (% of patients reaching at least Step 7) and clinical improvement (WSAS recovery rates) were calculated for each team.

Throughput

Preliminary analyses

The past experience of the Lead had a significant main effect on *FF* throughput, $H(3)=13.86$, $p=.003$. Post-hoc comparisons using the Mann-Whitney test revealed that teams of Leads with a "mainly-managerial" past experience used *FF* more than teams whose Lead had either a "mainly-clinical" ($U=-2.61$, $N=10$, $p=.009$) or a "both clinical

and managerial" background (U=-3.06, N=23, p=.002). Similarly, teams of Leads who indicated "other" as their previous experience used *FF* more than teams whose Lead had a "mainly-clinical" background (U=-2.24, N=8, p=.03).

Teams using clinical judgment[20] either at screening (U=2.22, N=31, p=.03) or at assessment (U=2.22, N=31, p=.03) used *FF* less compared to teams who did not indicate that. Length of assessment alone (ρ=-.59, N=29, p=.0007) and combined length of screening and assessment (ρ=-.57, N=24, p=.004) associated negatively with usage of *FF*.

Finally, the availability of 4 self-help books impacted negatively on *FF* throughput (Overcoming Depression and Low Mood by Williams, U=2.7, N=31, p=.007; Overcoming Anxiety by Williams, U=2.8, N=31, p=.005; Overcoming Low Self Esteem by Fennell, U=2.5, N=31, p=.01; Mind Over Mood by Padesky, U=1.98, N=31, p=.048). Total number of self-help books available to the team correlated negatively with use of *FF* (ρ=-.40, N=31, p=.02)

Multiple regression

Including in the full model the 10 factors above[21], the backward selection procedure identified a final model with 3 factors. Leads with more clinical past experience, more self-help books available and longer assessments related negatively to *FF* use and explained a high proportion of the variance, $F(3, 23)=23.68$, $p=<.0001$, $R^2=.76$, Adj $R^2=.72$.

[20] Other options were: IAPT Minimum Data Set, PHQ-9, GAD-7, IAPT Phobia Scale, *FF* Screening Questionnaire, CORE, other tool.
[21] To include the variable "past experience of the Lead" in the regression, it was made continuous by removing 3 subjects who answered "other".

Table 3-17. Factors influencing Leads' throughput

Outcome variable: l_tp (Leads' throughput), n=27

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
Lead's past experience per unit	2.670	0.636	<0.001	(1.353 to 3.986)
Length of assessment per unit	-0.103	0.025	<0.001	(-0.155 to -0.052)
Number of self-help books per unit	-0.201	0.062	0.003	(-0.329 to -0.074)
Constant	4.947	2.174	0.033	(0.450 to 9.443)

Completion rates

Preliminary analyses

Teams with less than 10 *FF* patients in total (*N*=4, 10%) were removed from the analysis, yielding 27 teams. Accepting referrals from the Probation Service (t_{25}=2.4, *p*=.02), Voluntary Sector Organisations (t_{25}=2.5, *p*=.02), the Education Service (t_{25}=2.34, *p*=.03), the Police (t_{25}=2.23, *p*=.03) and Job Centre Plus (t_{25}=2.13, *p*=.04) associated negatively with *FF* completion rates. Teams considering CCBT as a treatment option at screening[22] had higher *FF* completion rates compared to teams who did not do so (t_{25}=-2.12, *p*=.04). Finally, teams who had the following 6 self-help books available had lower *FF* completion rates: Overcoming Depression by Gilbert (t_{25}=2.7, *p*=.01), Overcoming Depression and Low Mood by Williams (t_{25}=3.13, *p*=.004), Overcoming Anxiety by Williams (t_{25}=2.88, *p*=.008), Out of your Prison by Rowe (t_{25}=2.44, *p*=.02), The Depression Helpbook by Katon (t_{25}=3.8, *p*=.0008), and Living with Fear by Marks (t_{25}=2.54, *p*=.02). Total number of self-help books correlated negatively with completion rates of *FF* (ρ=-.40, *N*=27, *p*=.04)

Multiple regression

[22] Other options were: at the referral stage (CCBT is mentioned on the referral form), at the assessment stage, other.

Including the 13 factors above in the backward selection regression yielded a significant model with 3 factors, $F(3, 23)=11.66$, $p=.0001$, $R^2=.60$, Adj $R^2=.55$. Accepting referrals from the Probation Service and availability of the Depression Helpbook by Katon and Overcoming Depression and Low Mood by Williams related negatively to *FF* completion rates at the team level.

Table 3-18. Factors influencing Leads' completion rates

Outcome variable: l_cr (Leads' completion rates), n=27

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
Overcoming Depression and Low Mood per unit	-0.070	0.027	0.016	(-0.125 to -0.014)
The Depression Helpbook per unit	-0.112	0.035	0.004	(-0.184 to -0.040)
Referrals from Probation Service per unit	-0.072	0.030	0.022	(-0.134 to -0.011)
Constant	0.417	0.019	<0.001	(0.378 to 0.456)

Clinical improvement (WSAS recovery rates)

Preliminary analyses

As for the analysis of completion rates at the team level, teams with less than 10 *FF* patients in total ($N=4$, 10%) were not included. The number of months the Lead had been in post correlated negatively with improvement of *FF* patients ($\rho=-.42$, $N=27$, $p=.03$), as did the percentage of staff turnover over the last year ($\rho=-.42$, $N=27$, $p=.03$). Patients from teams reporting "phone"[23] as the usual means of communication during the screening also improved less on *FF* ($t_{25}=2.38$, $p=.03$).

Multiple regression

The plot of fitted values against residuals (see p.230) revealed the presence of 4 influential cases, therefore the Huber Sandwich estimator was used because of its robustness against violations of the assumptions of variance heterogeneity. The Lead's

[23] Other options were: face to face, SMS, email, other.

length of service in current post and phone screening were the 2 variables included in the final model, which influenced negatively improvement of *FF* patients, $F(2, 24)=6.81$, $p=.004$, $R^2=.31$

Table 3-19. Factors influencing Leads' clinical improvement

Outcome variable: l_wsatotrec (Leads' clinical improvement), n=27

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
Lead's length of service per unit	-0.000	0.000	0.028	(-0.001 to -0.000)
Phone screening per unit	-0.031	0.011	0.010	(-0.055 to -0.008)
Constant	0.120	0.010	<0.001	(0.099 to 0.140)

Nurse Advisors

As discussed on p.85, only ratings about PCTs with a single service provider which later took part in the research were analysed, yielding 22 PCTs.

Activity

Correlation matrices below report associations (Spearman's ρ)[24] between activities carried out by the NAs in each PCT per quarter[25] (number of training sessions, workshops, and percentage of GP surgeries visited) and outcomes (mean throughput and completion rates for *FF*).

No significant correlation was found between training sessions and completion rates (hypothesis 1), apart from the association of TS Q2 with CR Q2 (see Table 3-20) which, however, is negative. No pattern emerges from the correlation matrix and no other result is significant, so this result is interpreted as spurious.

[24] * $p < .05$, ** $p < .01$

[25] Q1=Quarter 1 (Aug 09 - Oct 09), Q2=Quarter 2 (Nov 09 - Jan 10), Q3=Quarter 3 (Feb 10 - Apr 10), Q4=Quarter 4 (May 10 - Jul 10), Q5=Quarter 5 (Aug 10 - Oct 10).

Table 3-20. Correlations between Training Sessions (TS) and Completion Rates (CR) by PCT

	CR Q1	CR Q2	CR Q3	CR Q4
TS Q1	.25	.31	.03	-.13
TS Q2		-.53*	.11	-.24
TS Q3			-.23	-.02

Table 3-21 shows no significant correlation between workshops and completion rates (hypothesis 2)

Table 3-21. Correlations between Workshops (WS) and Completion Rates (CR) by PCT

	CR Q1	CR Q2	CR Q3	CR Q4
WS Q1	-.36	.06	-.06	-.33
WS Q2		.05	-.07	-.29
WS Q3			-.18	-.32

Table 3-22 reports correlations between percentage of surgeries visited and throughput (hypothesis 3). No correlation was significant.

Table 3-22. Correlations between Percentage of GP Surgeries Visited (SV) and Throughput (TP) by PCT

	TP Q1	TP Q2	TP Q3	TP Q4
SV Q1	.42	.30	.40	.43
SV Q2		.29	.03	.19
SV Q3			.21	.04

Although not an initial hypothesis, this study examined whether there was an association between training sessions and throughput. Table 3-23 shows a highly significant correlation between TS Q1 and TP Q2 and significant correlations between TS Q1 and TP Q3/Q4. In contrast, training sessions in Q2 and Q3 did not associate with throughput.

Table 3-23. Correlations between Training Sessions (TS) and Throughput (TP) by PCT

	TP Q1	TP Q2	TP Q3	TP Q4
TS Q1	.42	.59**	.53*	.56*
TS Q2		-.27	-.08	-.38
TS Q3			.02	.00

Table 3-24 investigates whether the same relationship between training and throughput existed between workshops and throughput. Only the correlation between WS Q2 and was significant but overall no clear pattern emerged.

Table 3-24. Correlations between Workshops (WS) and Throughput (TP) by PCT

	TP Q1	TP Q2	TP Q3	TP Q4
WS Q1	.02	-.05	.02	.01
WS Q2		.39	.21	.55*
WS Q3			.28	.43

Questionnaire items predictive of future throughput

Preliminary analyses

Of the 15 factors included in the NAs' questionnaire (from the *implementation process* category of Greenhalgh et al's, 2005), 5 factors were each positively associated with PCTs' future patient throughput as calculated from May 2010 to January 2011 (NAs returned their questionnaires in April 2010): PCT structure flexible and adaptive (ρ=.68, N=20, p=.001), *FF* aligned with prior goal of the management (ρ=.71, N=19, p=.0007), Lead involved (ρ=.63, N=20, p=.003), positive training feedback (ρ=.55, N=18, p=.02), and continuous commitment to implementation in the PCT (ρ=.51, N=20, p=.02).

Multiple regression

Including the 5 factors in the full model, the backward selection regression yields a significant model with only 1 factor, $F(1, 18)=8.50$, p=.009, R^2=.32, Adj R^2=.28. A perceived flexible and adaptive PCT (with regard to *FF* implementation) predicted higher *FF* throughput.

Table 3-25. Factors predicting PCTs' throughput

Outcome variable: tp_after (PCT's throughput), n=20

Covariate	Coef.	Std. Err.	P>|t|	95% Conf. Interval
Flexible and adaptive per unit	1.026	0.352	0.009	(0.287 to 1.764)
Constant	2.352	0.533	<0.001	(1.232 to 3.473)

Qualitative findings

Thirty-two Leads were interviewed and the content of 30 interviews was transcribed (p.84). For the analysis, however, only 19 interviews were included, as they were matched to the content of the Nurse Advisors' (NAs) interviews and to quantitative data. Seven interviews were excluded because they had been conducted with Leads of PCTs where more than 1 team delivered *FF* and each NA discussed their PCT *as a whole* rather than at the Service Provider level. One interview was excluded because the service no longer used *FF* by the time the NAs had begun their activities and 3 further interviews were not included as the relevant teams could not be tracked on the *PPMS* (see flowchart on p.95).

All six Nurse Advisors (NA) were interviewed and their interviews were transcribed. Sections which matched any of the following conditions were not coded:

1. Teams belonging to PCTs with more than 1 *FF* Service Provider
2. Teams who could not be tracked on *PPMS*
3. Teams who did not participate in the research (p.93)

Figure 3-2 below shows how representative the resulting 19 interviews are compared to the total sample of 30 interviews (this comparison is based on the team's throughput - mean number of patients starting *FF* each month).

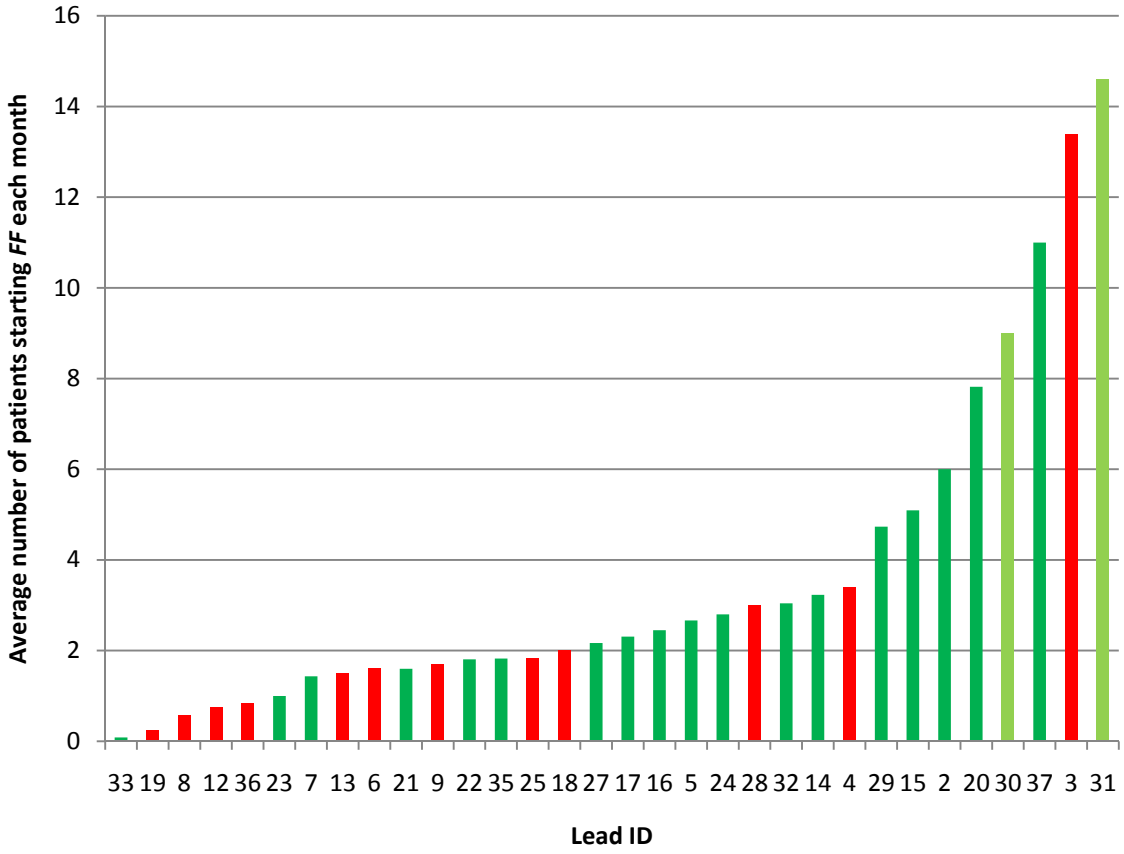
Figure 3-2. Included vs. excluded Leads' interviews

■ = Excluded interviews

■ = Included interviews

■ = Two different teams but same Lead (included) – see footnote 11 on p.95[26]

[26] The other interviewee acting as the Lead for 1 service studied during the transition to IAPT was excluded for its pre-IAPT phase (Lead ID=25; the NA wasn't in post at the time) but he was included when the service became IAPT (Lead ID=24; the NA had been appointed by that time).



Main themes identified in the interviews

Initial reflections

The interviewees provided rich material during their interviews. The content of some was extremely dense, offering deep insights into dynamics shaping CCBT implementation in the NHS that an external observer with no experience could have hardly guessed. For instance, one Lead discussed at length the practical reasons why it looked as if his staff was not using CCBT very much in comparison to other interventions. He stressed that although the IT reporting system used by the team allowed entering 2 treatment options at the same time (e.g. a Psychological Wellbeing Practitioner providing both face-to-face guided self-help and a CCBT package supported on the phone), the most-often reported option on the system was "guided self-help" only:

> *L32 – I would have probably very little doubt that if I have a PWP that is using CCBT and doing guided self-help, they are going to tick guided self-help.*

LP – Because it is the main intervention?

L32 – Well, also because they want to make sure that their supervisor knows that they are doing all this face-to-face work [...] so when it comes to performance management they want to go to their supervisor and say how busy they are and say "see how many people I have seen and how much contact I am doing …"

LP – Otherwise the computer is seeing these patients.

L32 – Exactly.

While some Leads showed a clear understanding of the complexities surrounding the implementation of CCBT within their team, other Leads offered more superficial and stereotyped answers, sometimes answering with a simple "I don't know" to the interviewer's questions, without adding any further detail. It seemed as if they were not particularly interested in understanding why CCBT was not working in their team, perhaps because they were not those who had decided to purchase *FF* in the first place (normally the decision was made by the Mental Health Commissioner in the PCT) and at present this intervention did not represent a priority for them. Some Leads genuinely wanted *FF* to work for their service, and they showed commitment to support its implementation, while others seemed less interested in investing time and resources to ease the adoption of *FF* in the team.

With regard to differences between the two groups of interviewees, a major dissimilarity between the Leads and the Nurse Advisors (NAs) was in their use of language which tended to be more clinical with the Leads and businesss-oriented with the NAs. Despite their clinical training, the NAs often talked about "targets", "management" or "priorities" while the same expressions were rarely used by the Leads, although Leads with a managerial background did sometimes use a language which was more in line with the one used by the NAs. This is hardly surprising, given that the NAs were directly employed by a commercial organisation and their main Key Performance Indicator (KPI) was increased usage of *FF*, as one NA clearly described:

My role was about making sure if there was a hundred people going through a year, then… or a hundred people going through a month, then my job, as far as I understood when I started, was to make that a hundred and ten, a hundred and twenty, hundred and thirty, hundred and forty. (NA1)

However, despite the differences within each interviewee's group and between them, the themes indentified integrated well with each other, forming a coherent code. Many themes showed a high degree of overlap between the Leads and the NAs, indicating that there was agreement between the two groups in considering a certain theme as important. For instance, the Supporters and their attitudes were discussed at length by both Leads and NAs. In other instances, certain items were discussed only by either the Leads or the NAs, and this indicated the value attached to these themes by each interviewee's group. Patients and their treatment preferences, for example, were almost entirely discussed by the Leads. On the other hand, NAs stressed far more than the Leads their perceived importance of organisational aspects to facilitate the implementation of CCBT in Primary Care Trusts.

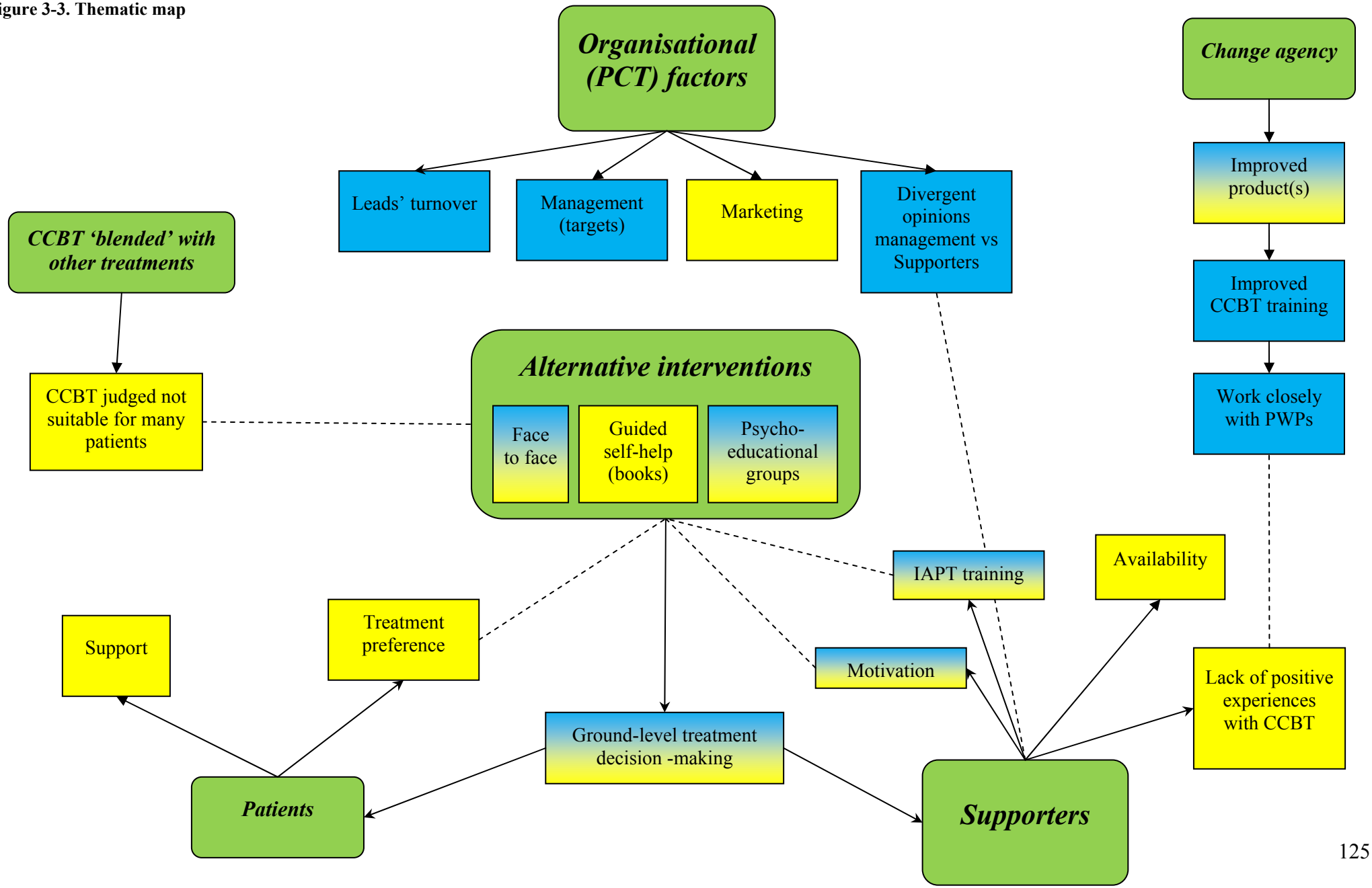
Many of the themes described below were perceived by both Leads and NAs as hurdles to the implementation of *FF*. The NAs spoke sometimes of feeling frustrated by such barriers. Given the nature of their job, they were more likely to feel a sense of urgency (they were on a 1-year temporary contract), whereas the Leads did not express such feelings. In general, the NAs seemed to exhibit a "pro-innovation bias" (Rogers, 2003) – that the innovation is inherently good, it should be implemented, and if it is not implemented, the barriers to implementation should be removed. They also had an obvious self-interest in making sure that implementation was successful. The Leads had a different perspective. The vast majority worked for services delivering other interventions at the same time, so CCBT for them was just one piece of the puzzle. Often, the PCT had purchased only a limited number of CCBT licences (1 licence = access for 1 patient), so even if they would have liked to use it more they could not, as one Lead reported:

> *FearFighter we've got 100 licences, Beating the Blues we've got 400 and something, that's the limit of what we can do for that. (L24)*

The thematic analysis was conducted as described on p.89. Six main themes were identified: alternative interventions to CCBT, patients, Supporters, organisational factors, the use of CCBT as a 'blended' intervention, and the role of the change agency (CCBT Ltd). Figure 3-3 below tries to capture in a single diagram the themes and their respective sub-themes. Items coloured in yellow were sub-themes mentioned exclusively by the Leads, while items in blue were sub-themes identified only from the NAs' interviews. Shadowed (yellow and blue) items represent sub-themes present both

in the Leads and in the NAs' interviews. Green items are the 6 themes, with larger rectangles indicating the primary themes. Solid lines indicate a connection between themes. Dashed (- - -) lines highlight relationships between different (sub)themes.

Figure 3-3. Thematic map



The pivotal theme: Alternative interventions

'Alternative interventions' was identified as the most important theme, the fulcrum of the whole thematic analysis by virtue of its many connections with most other themes. For this reason, it is placed at the centre of the thematic map and discussed first.

Very few teams taking part in this research delivered CCBT as the only treatment option. Two such teams were MIND services which piloted *FF* and *BtB* before their PCT established a fully-fledged IAPT service. During the pilot phase, they only had *FF* and *BtB*. Once the IAPT team was established, the new service started providing a wide range of choices, in line with IAPT guidance. "Patient choice" is a key tenet of the IAPT ethos. Among many of the non-IAPT teams (41% of services participating in this research), patient choice is still a guiding principle, and such providers (including both NHS statutory services as well as the third sector) deliver a broad spectrum of interventions, ranging from counselling to stress classes, from person-centred therapy to books on prescription. Third sector organisations in particular seemed to have a vast range of options for clients, as is evident from the quotation below:

> *This is the programme for [name of locality 1]. Remember we have Centres at [names of other 3 localities] where other things will be going on as well. People may well phone [name of locality 2] and ask what they have. Creative Writing, MoodMaster Group CBT, Computerised CBT session on a Monday; Counselling; Yoga; Craft Group Drop In; Meditation Group on Thursday; Music in the evening; Art Workshop. We have a digital photography group running at the moment as well. And then Drop In Counselling on a Saturday, with the gym open throughout the time as well. So quite a variety of activities. (L17)*

Among the many treatments offered by both IAPT and non-IAPT teams, those delivered face to face were the most preferred. In the context of this dissertation, "face to face" means any kind of individual therapy which is delivered entirely *vis-à-vis* with a professional, irrespective of the approach chosen and without the substantial use of auxiliary materials (e.g. self-help books). In some teams, PWPs could not deliver face-to-face interventions – it was the prerogative of Step 3 workers to work with patients in such a way. However, in other services, Supporters had the option to engage with patients in traditional 1-to-1 work, carried out entirely face to face. For some services, "psychological therapies" was almost a synonym for "counselling":

> *LP – 90% of your patients will get counselling, I understand?*

L2 – Yes. That is what the service is commissioned to deliver. Primary Care Psychological Therapies. For the majority of people, counselling is appropriate for at least some of the time that we are working with them. As and when it would be appropriate to use another intervention, that would be added

LP – [...] What you emphasise is that the service has been commissioned to deliver mainly counselling.

L2 – That is exactly what we are funded to provide - psychological therapies - and counselling is the mostly-requested option.

Another popular option was guided self-help, i.e. the use of written self-help materials by the patient as part of a treatment plan which included guidance from a clinician. The range and scope of books available to the teams differed substantially. Some services only offered carefully-selected titles (e.g. Mind over Mood, the Overcoming series, the Oxford Cognitive Therapy Centre series, etc..) which are written by leading researchers and clinicians in their respective field. Other services seemed to offer a much wider range of options. One Lead working for a third sector organisation gave a rich description of the many self-help books available in the service's library, regardless of the solidity of their evidence base:

L17 – Here we have art, craft, music, creating writing, meditation.

LP – Just describing it. This is your internal library.

L17 – Yes, it's the resource centre including things like "Life and How to Survive It" by Robin Skinner and John Cleese. "The Secrets of St John's Wort, The Miracle Herb". Norman Vincent Peel, "The Tough Minded Optimist", the author of "The Power of Positive Thinking".

LP – But do you have any books on guided self-help?

L17 – Hypnosis. "Chicken soup for the Woman's Soul". All of these I would put in the category of self-help. "Introduction to Psychology". Anthony Robbins "Giant Steps". "Healing without Freud or Prozac" Dr David S Schreiber.

LP – But have you got any structured book, as a recovery process?

L17 – This is very informal.

LP – But you don't have a section for "Self-help for Depression", Chris Williams or someone else. You haven't got Chris Williams' books here.

L17 – We have Chris Williams' books "upstairs" in the Counselling Service. They have a set. This is our Counselling Service and they have a set of the Chris Williams Books. We also have a set of the Chris Williams books over at [another locality's name].

LP – Why did these books get in there but not in here?

L17 – It is a very fine question Luca and I don't have the answer for you

Throughout the interviews, the uptake of guided self-help appeared to be much higher than that of CCBT. In some IAPT services, the reported proportion of patients doing guided self-help was as high as 80%. When the Lead of such team was questioned why this was the case, he offered valuable insights about the role of recruitment and training issues in determining such outcome:

The reason it is so high again is how the service was set up. It was set up from scratch and started [becoming] operationally active in April 2009. We were to have, at that point, 10 Low Intensity trainees in training and provide 4 qualified Low Intensity workers. High Intensity, we were to have 11 in training and 5 qualified High Intensity workers. In the end we could only employ 2 qualified High Intensity therapists so we put them in training. We couldn't in fact employ any Low Intensity qualified workers so again we had to put everybody through training. That restricted how responsive we could be, in terms of being operational, to referrals coming in, so the emphasis was upon, as people acquired competence and skills, in particular the Low Intensity, then we started to do work that fits where they were in terms of university training and fits where they included their previous background working for mental health services, which wasn't a lot to be fair. We promoted the use of guided self-help as the primary intervention, above and beyond more one-to-one or more intensive interventions. There was a high use of guided self-help. They have now just come out of training and now we are looking to promote and expand the range of interventions that the Low Intensity workers can provide. (L20)

Patients doing guided self-help could be supported in a variety of ways. The vast majority of Leads confirmed that patients were supported face-to-face, rather than on the phone:

LP – Guided self-help is delivered by PWPs. Is it only telephone work?

L16 – No, it is face-to-face work.

LP – So all of it is face-to-face?

L16 – All the guided self-help is face-to-face, yes, and all the CBT is face-to-face.

The last treatment option discussed at length by the interviewees was psycho-educational groups. In IAPT services in particular, there is a strong emphasis on the cost-effectiveness of interventions provided, so groups are perceived as a more efficient way of delivering therapy, as well as allowing the participant to experience face-to-face interaction both with the facilitator of the group and with fellow members. Overall, groups were quite popular, and some patients seemed to enjoy the possibility of meeting other people with similar problems, making friendships and sharing experiences:

LP – Have you got several groups?

L22 – Yes, we do. We have the big psycho-educational group, that is stress control, that's a didactic taught group and then we have the smaller interactive CBT groups. We have one that focuses on depression. One that focuses on anxiety. We have an assertiveness group and we have a self esteem group and they are all based on CBT principles.

LP – Are these delivered by step 2 workers?

L22 – Yes.

LP – I understand the take up is good, so I guess both staff and patients are happy with that.

L22 – Yes, it works really well.

When discussing alternative treatments to CCBT, the NAs agreed substantially with the Leads. The NAs showed a good level of understanding of the dynamics operating within the teams, indicating that their reports can be considered a credible account. For example, the following extract reports a comment made by one Lead about why *FF* was not chosen very often in her team:

I genuinely just think that because we offer so much choice of different activities and interventions that people prefer to come in to the service and do things where they are with other people and face-to-face with therapists. I think they just chose not to do the computerised work. I think if we had a more limited choice of what we offered, maybe they would be used more but I think because we offer the psychological interventions, the psycho-educational groups, exercise, relaxation, meditation and all the other things we offer, people tend to choose things where they are actually with people rather than online. (L22)

And this is what the NA working with the above Lead said when asked to comment on what was happening in that service:

> *She said they had so many options. They do have a lot of choices, they have lots of groups, they have relaxation, they have aromatherapy, they do have a big menu of things to be offered and the managers are of the opinion that patients choose different things before they choose computerised therapy. So they say they are offering a good service and don't really need it. (NA3)*

To conclude, both Leads and NAs reported a strong preference within the teams for interventions other than CCBT, whether face-to-face therapy, guided self-help or psycho-educational groups. The questions which need to be addressed are *why*, and most importantly, *who* decides which treatment to pick for a particular patient.

GPs' role in treatment decision-making

First of all, almost no team reported following the GP's advice. Efforts were made to raise awareness of CCBT among General Practitioners but they were largely unsuccessful, as demonstrated in this dissertation by the lack of significant correlation between NAs' visits to GPs and *FF* throughput (p.117). Very rarely GPs would specifically recommend CCBT for a particular patient, often suggesting "counselling" instead, as reported by the two Leads below:

> *L35 - Historically, because most surgeries have had counselling, they are still able to identify overall what services they are asking for a patient . Probably there is an over-identification with counselling as the best option. There is still a training need, I think, for GPs to understand that counselling may not always be the most appropriate thing. A certain number of referrals are going directly to the counsellors, we are not triaging or screening or anything.*
>
> *LP - Ok. So you mean the GPs are often writing on the referral form "counselling".*
>
> *L35 - Yeah.*

> *LP – So very few GPs are referring for CCBT, or probably none?*
>
> *L37 – Not specifically for CCBT really. They just send in generic referrals that say stuff about "mental health" and counselling.*

Most GPs thought that their job was to refer the patient to the mental health team for further assessment, and then it was up to this team to decide what to offer. In their referral form, the vast majority of GPs put little information; sometimes the PHQ-9 and GAD-7 scores were included, sometimes they were not:

> *L14 – The screening - basically we get a referral from the GP which consists of possibly a sentence why this patient needs to be seen. They all come into the office centrally and two practitioners look at them to see if they are appropriate. They then gather further information. Part of the GP's referral sometimes has a GAD score on it or a PHQ9 score [...]*
>
> *LP – So for the screening, PHQ9 and GAD7 might come from the GP or might not.*
>
> *L14 – Yes.*

However, regardless of whether the GP had inserted PHQ-9 and GAD-7 scores on the referral form, the IAPT teams assessed the patient again and made their own decision about treatment, as this NA describes:

> *As a nurse, in a different role, if a consultant [...] says to me "you know, [name of NA1], this person needs this and this person needs that", then it would be the case to just following their lead, that's not the case within IAPT. Because, regardless of who is making the referral, they still have to do the PHQ9, GAD7, Phobia Scale. So, subsequently, it might be, you know, that, even though the person wants FearFighter, they might think something else is appropriate. I am not saying it doesn't influence, but it does not necessarily correlate the two. (NA1)*

At times, a provisional diagnosis was made by the GPs but most teams did not feel these diagnoses were accurate enough, so they tended not to follow them:

> *L32 – I'll show you the data we have got for GP diagnoses but it is not good so for us, around about 80% of GP provisional diagnoses would say mixed anxiety and depression.*
>
> *LP – 80%?*
>
> *L32 – Yes. And our provisional diagnosis for mixed anxiety and depression is something like about 35-40%.*

The thematic analysis revealed that the bulk of treatment decision-making happened "on the ground". It was a process driven by a dyad comprising patients and front-line staff, i.e. Supporters. To a large extent, the actual choice of treatment was not determined by people at the higher level in the organisation (Clinical Leads, Service Managers, or Mental Health Commissioners) or by GPs. In the majority of services, both patients and Supporters were actively involved in choosing the most suitable interventions and, through shared decision-making, they collaboratively developed a treatment plan:

> *LP - You mentioned the treatment plan that comes at the end of the assessment. Is this written mainly by the PWP or by the patient? Who contributes most of it?*
>
> *L16 – I think it is a collaborative process but the PWP will use their clinical skills to sum up the person's difficulty so together they will come up with the problem statement and look at particular target areas. From the target areas they look at the most appropriate intervention for that. For example, with depression, there might be reduced activity so the treatment plan would be geared towards behavioural activation. That would be delivered on a collaborative basis so we would be socialising people to the CBT model through formulation and we would be explaining why it is important to target that particular area and what was the rationale for increased pleasurable activity, for example. They would be deciding with the PWP, with guidance from the PWP, that that is the most appropriate form of treatment.*

Patients

Treatment preference

In some services, the decision-making process was driven mainly by the patients. They were offered a wide range of options and they decided which one to engage with. Leads reported that many patients at this stage preferred treatments other than CCBT:

> *LP – Do you think the problem with CCBT is more related to the technology, the way of delivery the treatment etc., or do you think there were also some problems specific to FearFighter?*
>
> *L22 – I don't think it is anything to do with FearFighter itself. I think if it was any computerised treatment it would be the same, to be honest. I think the method of delivery because they [the patients] have the choice of so many other different methods of delivery; they chose the others, I suppose.*

When asked why this was the case, Leads thought it was due to patients preferring face-to-face contact, rather than working on their own (even if supported) on an intervention like CCBT. Among the public, awareness of CCBT seemed to be low and very few patients came forward asking specifically for this treatment modality:

> *It is very rare that someone will phone up and specifically ask for CCBT. Not enough people know about it. They know about counselling, they know what general groups we have. It is probably less than 10% will call and say they want to do CCBT. (L17)*

Resistance to considering alternative treatment modalities concerned not only CCBT but also other treatment options which did not include human contact. Patients' hopes about what to expect from the service were often described by the Leads as "to talk to somebody" or "to have some human contact":

> *I think all of the people who spend all day on computers they just want some human contact. We had that sort of response. So much of their work life is generated by a computer, they just want some human contact. (L35)*

These expectations seemed also to be influenced by what referrers often told the patient during the initial consultation (as discussed above, GPs indicating "counselling" as the most frequent reason for referral):

> *LP - Sometimes it might be like "I've been referred for counselling [...] so if I've been waiting "x" amount of time in order to see someone and speak to someone, when I am meeting with that person then I don't want to lose that person". [...].*
>
> *L23 - Yes, that's what happens in a lot of cases. People feel that have been referred to the service to speak to a specialist and they'd rather do that than do something on their own at home.*

Patient support

'Patient support' was the other important sub-theme within the 'patients' category. The first RCT done on stand-alone *FF* (Marks et al., 2004) provided face-to-face support to patients, while the second RCT (on internet-delivered *FF*; Schneider et al., 2005) offered phone support. The outcomes of these two trials were largely comparable, suggesting that the two modalities of support delivered roughly equivalent results. From the analysis of the Supporters' questionnaires we know that in this study the vast

majority (80%) of patients were supported only or mostly by phone, with face-to-face support being offered by a minority of workers. The quantitative data however say little about the perceived value of each support modality to staff. From the interviews with Leads, it emerged how face-to-face support (in spite of being offered less often than phone support) was considered to help engagement with the patient and alliance building, which is an area of particular concern for staff when offering CCBT to patients. CCBT was described by some Leads as "impersonal" or "isolating" (L37), thus establishing that initial rapport was seen as a crucial moment for the success of patients doing CCBT. Two Leads in particular (both from the mental health charity MIND) described how they were routinely giving the chance to patients to come to their offices or to the local library, help them get started on *FF* and helping them to carry on for 1 or 2 steps, after which they would then usually proceed from home:

> *L29 - The initial appointment was from the library. They were still completing [FearFighter] at home, but we did the screening and the initial set up in the libraries with people, so that was where we saw people.*
>
> *LP - Do you normally make sure they log in?*
>
> *L29 - That they log in, that they understand how it works, where to click, what to do, all that kind of bits, to get used to the system, really.*

Other Leads, however, despite acknowledging the value of arranging for the patients to be seen face to face when offered *FF*, were unable to consider the idea any further due to lack of resources in arranging the room where clients could access *FF*, even if for the first step only:

> *L23 - Ehm... it probably would be more cost-effective in the long run but in terms of accommodation we would have absolutely nowhere that we could facilitate that. We wouldn't have the room.*
>
> *LP - Do you think it's not possible to find a room?*
>
> *L23 - It really isn't at the minute <smiles>. Oh, we have not got enough room for all of our staff, never mind have then another room for clients on their own.*

Supporters

Although patient choice was always taken into account, in other teams the decision-making process was mainly driven by the workers, and therefore 'Supporters' was identified as the third theme. NAs discussed extensively the important role that

members of staff could play in boosting usage of *FF*. In particular, they described two characteristics they thought staff should possess. First of all, they stressed the importance for staff to be *enthusiastic*, i.e. workers genuinely interested in delivering *FF*. This aspect is specular to the '*motivation*' factor discussed as a barrier on p.136. When asked about success factors in implementing *FF*, most NAs responded like the NA below:

> *You need a group of individuals who are happy to use CCBT (NA1)*

The second characteristic of workers that NA identified was the importance of *accountability* – at least one individual within the team designated as being clearly responsible for how the implementation was proceeding. During the initial stages of implementation, most teams nominated a champion – a worker leading on CCBT who acted as the first point of contact for peers and who was later invited to service review meetings with managers and representatives from CCBT Ltd. In some cases, the champion was someone who volunteered to cover this role and genuinely had an interest in CCBT; in other circumstances, the Lead nominated the champion and he/she did not necessarily had a special interest in the area. For NAs, having a 'champion' only on paper was a frustrating experience. Having a person taking responsibility was seen as crucial for success:

> *In each service I would want a specific individual taking responsibility for how it is used in their service (NA3)*

Were Supporters inclined to recommend CCBT? In short, the majority were not. They were not motivated to use *FF* with their patients and often preferred other treatment options. During the initial *FF* training, the intervention was in many teams perceived as useful and ways to embed it within current procedures were discussed. An important part of the training delivered by the NAs included a role play, where one member of the team played a patient suffering from either panic or phobia, while a co-worker played the role of a Supporter introducing the patient to *FF*. However, despite the simulations and the overall positive feedback received during the training sessions, such response did not seem to correlate well with subsequent usage of the package, at least in some groups:

> *When you do the training, if they have never seen it before and you go and do the 3 hour training with them, they love it. They absolutely think it is the best thing [...]*

yet 2 or 3 weeks down the line, where are all the referrals? Why aren't they using it? (NA4)

Within each team, there seemed to be a polarisation among workers, with a huge gulf dividing those who did like CCBT from those who did not. Rarely there was a shared consensus about *FF*. Often, a few individuals acted as "champions" and they were keen in using *FF* with patients and promoting it to colleagues, while a few staff definitely resisted using it. This was confirmed by Leads:

LP – Do you think that this resistance had an impact in how CCBT was proposed to the patients?

L15 – I think probably very likely, yes. I think there were some staff who were really on board with it and became our champions and there were some staff that wouldn't have dreamed of asking to be champions because they didn't want to give it the energy and time. I don't think anybody, for one minute, thinks it is not effective. I just think it is like anything new.

and NAs:

There is a vast gap between those that like it and those that don't. There is one or two there that don't seem to grasp it, don't want to use it, whereas you've got one or two that are very, very positive about it. (NA1)

Throughout the interviews, Leads and NAs talked at length about why Supporters resisted offering CCBT, indicating that this was an important theme where substantial agreement existed between the two groups of interviewees. The thematic analysis identified four main sub-themes for this category: motivation, (prior) IAPT training, availability to deliver CCBT and lack of previous experience with CCBT.

Motivation

First of all, many Supporters lacked motivation to deliver CCBT because, like most patients, they too preferred face-to-face interventions. This was a consistent finding which recurred throughout the interviews. The NAs perceived that very clearly and believed that this had a direct impact on the use of CCBT:

I think as well because they are often psychology graduates who have done a lot of training, they just want to get in front of people. They want to see people face-to-face. So they just don't see CCBT as an option (NA4)

When the reasons *why* Supporters had a preference for face-to-face contact were explored, both Leads and NAs discussed the workers' disillusionment about being in a role which most of them thought would have been different, and the desire to move forward along their career path. Perceptions of the therapist's role were debated and in many workers there seemed to be a strong belief that the face-to-face contact with the therapist was essential for a patient to achieve change. One Lead poignantly talked about the perceived "magical nature" of being a therapist among his staff:

> *I think there is still a sort of perception about the "magical nature" of being a therapist, whatever that means, and one of the motivations of people coming into that work is using themselves to generate change and help people (L32)*

Supporters in general showed resistance to using alternative ways of delivering therapy which was not confined to CCBT only. For instance, telephone work is very common within IAPT services, and a few teams do not even allow PWPs to have any face-to-face contact with patients. Telephone work is the bulk of what some services routinely offer. However, using the phone to deliver psychological treatments was equally met with resistance by the workers:

> *LP – If there is an implicit preference for face-to-face work (in some workers at least) is this bias applicable to telephone work as well?*
>
> *L15 – Yes. We have actually had to encourage them to use telephone more. Commissioners are saying it is OK to use the telephone more and staff I think, by the nature of their jobs, want to provide and want to do that face-to-face.*

Disillusionment about the PWP's role was reported by several Leads. PWPs are operating at Step 2 within IAPT, which is a rather different environment from the traditional 1-to-1 setting which most workers seemed to expect. Steps 2 work is a light-touch approach, focused on delivering brief interventions to a high number of users. Working in a call-centre fashion with their head phones on all the time is probably not very attractive to PWPs, as this Lead reports:

> *LP – You don't see 20% or 30% of people who, on the other hand, are extremely happy working over the telephone etc. You don't see that?*
>
> *L37 – No.*
>
> *LP – So it's consistent across the spectrum really.*

L37 – There is no-one here that would say they would love to sit with their head phones on all day long just doing that. No, not at all. We have got some people who embrace the PWP role because they understand what it is and they didn't particularly have a different expectation of it and they are probably using it as a stepping stone. They are prepared to give it 110% while they are in it with a view to the fact that they will catch someone's eye and that will go down well for them in their future career path. I don't think I could talk to any of them who would say "this is the most rewarding job on the planet". Even those that are very positive in all other respects would not say that. It is difficult because I have to sit in supervision and try to keep people motivated when it is quite clear they are disillusioned.

Although they could not be interviewed, Supporters had the chance to use the free-text boxes in their questionnaire to add comments if they wanted to clarify their answers, which some did. One of the questions asked whether they felt deskilled in using *FF*. The following comment made by a Graduate Mental Health Worker in relation to the above question is particularly revealing of the feelings experienced by some of the workers using CCBT:

I not only felt deskilled, I felt betrayed by the DoH and NICE recommending such an intervention as an equally-valid alternative for a professional human interface intervention (Graduate Mental Health Worker)

Staff's negativity about *FF* was discussed often by the NAs, and it was the most frequently reported answer when asked to name the most frustrating aspect of their job:

Most frustrating [...] the negativity. The people who are reluctant to even try and just want to keep doing things the way they have been doing things. It is about their own needs and how they do it rather than being prepared to try anything different (NA3)

Through the Comments boxes, another Supporter gave a very honest account about the reasons why CCBT was not used more:

Staff need to feel confident selling CCBT as a recognised treatment option. Staff often feel like they are not doing anything per se, and therefore sell individual sessions more. (Psychological Wellbeing Practitioner)

Is it not surprising that disillusioned staff had the desire to progress in their career. The PWP role is often perceived as a temporary role, suitable for new graduates but with

little opportunities in terms of career progression. Most of the PWPs aspired to be become High-Intensity Therapists or Clinical Psychologists:

> *LP – Do you think there is a big drive toward "I want to step up, I want to do Step 3" for instance, "being High Intensity [Worker], or to go somewhere else" [toward better paid jobs]?*
>
> *L37 – Yes. There has been a definite pattern [...] as they come in, very few people say they want to be a PWP for ever because they have seen that there isn't a very good career path and I know that is something that IAPT are nationally addressing. They are looking at having supervisors within the PWP role and career progression but I think, at the moment, it is seen as being a very life-limited role. Most of them come in and say they want to be a High Intensity worker. That is their aspiration.*

PWPs, therefore, need to make the most of their time while in this role before they can apply to better paid and more senior jobs. Trained PWPs are normally placed on a Band 5 salary (NHS Agenda for Change), while newly-qualified High-Intensity Therapists or Clinical Psychologists start at Band 7. To progress to these more senior roles, face-to-face experience with patients is what is most valued. The Institute of Psychiatry (the birthplace of *FF* and *BtB*) explicitly mentions "face to face contact with service users" as one of the criteria for relevant clinical experience to be admitted to its doctoral course in Clinical Psychology (www.leeds.ac.uk/chpccp/12InstitutePsych.html), which for several years was the most competitive course in England to gain admission to (in 2012, there were 1,001 applications for 21 places). Other courses expect similar experience, and none of the 30 training sites request familiarity with CCBT. CCBT is not included in the PWPs' Continuing Professional Development (CPD) evaluation, as this Lead reports:

> *They want to do something else. They say that CCBT is not in their CPD appraisal (L32)*

The exclusion of CCBT from the CPD appraisal is also indicative of another issue which goes beyond Step 2 workers. PWPs are routinely supervised by more senior (Step 3) therapists, who have been trained and recruited to deliver face-to-face CBT to clients. It is therefore unlikely that PWPs' unfavourable perceptions of CCBT might be challenged by a Step 3 worker who is even less familiar with such interventions, leading to a sort of "trans-generational perpetuation" of beliefs and attitudes about therapy:

L32 – I think the other thing for us as a service that we have worked hard on, this whole perception thing is not just about a step 2 worker's perception - it is also about their supervisor's perception. One of the dilemmas in IAPT, I think for many IAPT services, certainly for ours,, is inevitably our supervisors are people with more experience; they are step 3 workers. They are also often people who have come from a more traditional psychotherapy setting. So their supervision is often tainted, even unconsciously, with that attitude. So the perception of seeing someone 15 minutes with a box of tissues is kind of easy for it to perpetuate.

IAPT training

The importance of how CCBT is perceived by more experienced therapists becomes even more evident when considering the second sub-theme, i.e. the IAPT training course that PWPs had to complete before qualifying. Both Leads and NAs acknowledged that within IAPT training courses CCBT did not figure highly; it was mainly mentioned as a reference, to make trainees aware of the NICE Technology Appraisal 097 recommendation (NICE, 2006) but it was not discussed any further. Unlike other approaches (e.g. behavioural activation), there were no assignments on CCBT. Leads reported that the emphasis tended to be again on face-to-face work:

LP – As far as you are aware, in the training they received at university, was there any room for CCBT?

L20 – It didn't feature high within the curriculum so it is referred to as evidence-based treatment as reference to NICE but it wasn't particularly high in terms of the use of CCBT. It was more of a reference towards CCBT. The emphasis tended to be upon actual face-to-face and one-to-one work, some exposure work, intervention activity etc.[...]

LP – Why was this big emphasis on that [face-to-face]?

L20 – I think it is probably a couple of things. One, it is the first year that [name of IAPT training site] was running the course for Low Intensity, so they are just finding their feet. We had a number of issues with [site name] throughout which, for me, seemed to be a bit about whether [site name] was as a mature university course. I think the lecturers were all relatively new [unintelligible]. And then looking at the curriculum itself, I feel the emphasis tends to be more around face-to-face rather than self-help and support interventions.

The NAs confirmed that the focus of the IAPT training was on face-to-face therapy and on giving choice to patients:

> *I feel they probably don't get enough focus on it within their training. The focus is very much on patient choice and only giving them face-to-face therapy. (NA4)*

Step 2 work is about high-volume, low-intensity interventions, and telephone is a popular means for delivering guided self-help. As discussed above, telephone work encountered resistance by staff. When discussing IAPT training, Leads recounted that telephone work, although present, was not emphasised either:

> *...we've had a bit of a struggle for them to do things like telephone, because (although it's in the training at the University) is not emphasised as much as it could be, and staff like to see people. I think it was Katrina Lovell that used the telephone and [showed] how much patients like it and feel benefit of it, but our staff... I don't think our staff are any different to anybody else's, but haven't done that leap yet, which we are now trying to encourage them to do. (L24)*

It is difficult to establish whether workers' pre-existing attitudes were reinforced by the IAPT training, or whether those attitudes developed as a consequence of their participation in such training. At times, it seemed that a single training lead had a notable influence on shaping the PWPs' attitudes:

> *It does seem that people that we trained very early on, the early PWPs that were trained in [name of training site] under [name of the local IAPT training lead] do have a negative view [...] they said that [name of the local IAPT training lead] is completely against CCBT. So some of the earlier ones that trained with him are quite difficult and because they are the most experienced members of the team, they have quite a lot of influence on their newer colleagues (NA3)*

IAPT training was also criticised as being too academic, lacking what a Lead called "a political understanding" of what an IAPT service really is and of its associated demands. This caused staff to be caught in the middle of a clash of cultures, between the "utopian" view of academics and the pragmatism of the managers running the IAPT services:

> *LP – Can you mention which were the problems, the small teething problems with your PWPs in training?*

L37 – <sighs> The first training we had was from [training site 1] and two of the people who delivered that training had actually worked in IAPT services as Low Intensity workers as they were then, so that training was much more geared towards people actually doing the job and that was very helpful. The two other sets of training, one from [training site 2] and one from [training site 3], had people who were academic workers but who had not worked within IAPT services. So what was taught was very academic but was not necessarily very well presented in relation to how you might put this into effect in the service. What they didn't have was a sort of political understanding of how the IAPT services work [...] there was kind of a utopian view of the University and there was "this is what it is like when you are trying to do this on the ground" view from the IAPT service. Our staff were in the middle of that so they were being told "you absolutely shouldn't manage any more than so many cases and we were saying in order for the service not to collapse, we are really sorry, but you are absolutely going to have to manage more cases than they are saying. Then they would set other services up against us and say "well they are not having this many cases". And we would say "well we have self-referrals as well as GP referrals so we have more referrals coming in, so in order to manage that, we are going to have higher case loads". So it kind of set us against the University which is awful, because you don't want your students stuck in the middle of that.

Given the lack of CCBT instruction within their IAPT training, the two companies marketing *FF* and *BtB* had to arrange their own training sessions for the teams which had purchased licences for these programs. CCBT training was something "on top" of the core training they had already received, rather than an integral part of it. The CCBT training was delivered by NAs; these were external to the team as well as working for a commercial company, so they were perceived neither as peers nor as supervisors. During a few training sessions, NAs reported criticism directed toward *FF*, with workers comparing the package to their pre-existing knowledge, focusing more on the discrepancies rather than on the similarities:

the trouble is, when you are trying to teach FearFighter, if this is all you are hearing, "why isn't this here?", or "why isn't that there?", or "why have you chosen to do it this way?", or ... you know, it makes it very difficult to put it forward (NA1)

One NA clearly stated how *FF* was not in line with the training they had received. Although it was not explicitly mentioned in the interview, from previous discussions

with this NA the comment below can be ascribed to the fact that the *FF* version used by staff at the time was mainly a behavioural intervention, while the training they received at University was more cognitively-oriented:

> *Some have said that it is outdated and that it doesn't use the same theory that the PWPs learn when they go to college and university (NA5)*

Availability

At the end of every interview, each Lead was presented with a graph showing the throughput for *FF* in their team, from when they went live with it up until the month before the interview. They were then asked whether they could think of factors responsible for both peaks and drops in usage. "Reduced availability of staff" was consistently identified as the single most important factor for a sudden drop in the number of patients using *FF*. Reduced availability could have been either temporary (a single member of staff on sick leave), as in the case of this Lead:

> *L14 – I was on long term sick.*
>
> *LP – In Nov 2009? When did you come back [...]?*
>
> *L14 – [...] I came back in January 2010.*
>
> *LP – That is interesting because in November you had 1 person starting. December zero. You came back in January. January you had 1. In February you had 3 and in March you had 5. That is interesting.*
>
> *L14 – That will explain that <laughs>.*

or it could have been permanent (significant proportion of staff leaving the posts), as other Leads reported:

> *LP - In the first months (besides January) you had someone starting each month, and then there is a big gap from July 09 until November 09 where things were very different [usage dropped significantly]. Have you got any idea why that was the case?*
>
> *L23 - That was because we lost lots of our staff, so the number of people we were assessing and treating dropped.*
>
> *LP - So they were organisational factors, people leaving.*

L23 - Yeah.

On the other hand, *availability* of staff delivering *FF* was identified as a major factor boosting uptake. As discussed on p.93, occasionally the Lead was a senior member of the team delivering *FF* to patients. In one voluntary organisation, the Lead was also the *FF* champion. She had been involved in the implementation of *FF* since the early days (her team began using it in 2006, among the very first nationally) and she was particularly keen in delivering CCBT. She was responsible for the lion's share of *FF* usage within her team. In the months preceding the interview, she had been temporarily allocated to a different role, and the *FF* throughput quickly decreased. When she came back to using *FF* again, the throughput immediately went up:

LP - I remember you mentioning that you got back to FearFighter after a long time. You were not delivering it anymore. When did you start using it again with patients? I think it has been recently...

L29 - Yes, it was recently. It was in January, this year.

LP - So that's your contribution... [there is a peak of new patients starting FearFighter in January]

L29 - <laugh>

While in some teams having staff focused on delivering *FF* was a conscious decision, in other teams this seemed to be the end result of a rather unpredictable process. The Lead below describes such an instance. In her team, *FF* throughput had been notoriously low. When asked to comment on the reasons for one big spike in the number of patients starting *FF* in a specific month (it was approximately 3 times the usual monthly average), she was not sure at first, but reflecting on what had happened at the time, she gave the following explanation:

L22 – Nothing major was happening in the service really at that time. It is possible that at that time we had 2 new trainees that started towards the end of the summer. They did the Low Intensity course even though we weren't an IAPT service at that time. We trained them up to be Supporters and because they weren't able to practise doing assessments and things, I think the main thing that they could do was the FearFighter.

LP – OK, I see.

L22 – They were almost dedicated a few months before they were able to view the proper assessments and things once they had had the university training, they were focusing on just delivering FearFighter and helping out around the service.

As discussed, the majority of teams' Supporters could choose among a wide range of options. However, in a few teams a specific Supporter was allocated to CCBT only. Again, this was not always a conscious decision, and it seemed to be dictated more by the pressing necessities of the service than by an intentional choice, as this Lead explains:

LP - Comparing this choice that you made (of having one person to deliver CCBT) with other services nationally [...] which was your rationale for that, instead of the most common option "opening it up to everybody, and then they could use it as well as other things"?

L31 - I don't think it was a conscious decision, Luca. We were fortunate enough in that the [PCT name] were prepared to fund [Supporter's name] through into IAPT. Initially, the CCBT service was sort of going to run until April this year, that's when the licence expired. That's what we got funding for, for [Supporter's name]. It was always that [Supporter's name] was going to stay on board in some role until April.

LP - Because of her previous experience, then, you thought the best would have been for her to-

L31 - Yes.

LP - Ok.

L31 - Initially, the majority of the PWPs trained both on Beating the Blues and on FearFighter, but I think that the PWPs had such a lot on their plate, when the service went live in October. They were coming into a brand new role, in a brand new service, they were (for many of them) starting university, for many of them that was the first time in their life that were doing extended studying. They were getting to grips with their own job, their own knowledge etcetera etcetera, so it just happened that [Supporter's name] continued to take those referrals <pause>. It wasn't necessarily a conscious decision.

In the teams where dedicated CCBT workers were in place, this seemed to work particularly well. When the above Lead was asked why this was the case, she did not mention "lack of treatment choice". Instead, she emphasised the focus and the depth of

specific knowledge that her dedicated CCBT worker could develop around this treatment modality:

> *L31 - I think that, certainly in the early days, when we were setting up the CCBT service, from a manager's point of view I found it very difficult dealing with client queries about the two programs [Beating the Blues and FearFighter], when you weren't using it on a regular basis. The client would phone and say "I'm at this stage and I'm stuck, I don't know what to do next" so and they would seek advice and it was very difficult to seek advice if you didn't have a thorough understanding of the two programs. It worked well because [Supporter's name] already had gained that understanding, she could continue in that role, and there was no additional pressure on the PWPs to learn something else…on top of everything else, they would try to learn and understand.*
>
> *LP - So you think that it was a good choice.*
>
> *L31 - I do.*

Lack of positive experiences with CCBT

Finally, the last sub-theme within the 'Supporters' theme was the lack of positive experience with CCBT. This sub-theme was considered significant, but received less attention compared to the workers' motivation and the IAPT training, which were discussed more. From the interviews, it looked as if some workers ended up in a "vicious circle" – they did not like CCBT → they did not use it with patients → confidence around CCBT was not built (while it was built around other treatment options) → this reinforced their decision not to use CCBT. Leads were aware of such dynamic, and they stressed the importance for staff to have an overall positive experience with CCBT, whether it was seeing its effectiveness with patients or whether it was coming from other sources (e.g. colleagues talking positively about it):

> *It is about staff having really good information about what the package is intended to do, how it works, how to refer people for the service if they are not delivering it themselves; having a real belief that it is likely to be effective; seeing some good outcomes from it; hearing patient feedback on its effectiveness. All of those things build staff confidence up and when staff have confidence in a package like this then they are much more inclined both to refer into it or to use it themselves [...] I think*

it is not just about these packages but about any new service or any new treatment (L2)

Organisational factors

Patients and Supporters were the treatment decision-makers, and their importance emerged consistently throughout the interviews. However, both Leads and NAs discussed also organisational factors as very important to the implementation of *FF*, and such factors formed the fourth theme. High turnover of Leads, management, divergence of opinions between Leads and Supporters and marketing were the four factors identified within this category.

Turnover of Leads

Not surprisingly, this theme was identified by NAs only. For NAs, it was essential to build a good working relationship with the Leads, who were the main point of contact within that PCT with regard to any activity related to the implementation of *FF*. Without an established and ongoing rapport with the Lead, the NAs were unable to do their job – they could not arrange training or workshop sessions with the Supporters (as such activities required prior approval), nor they could visit GPs. It was felt as highly disruptive by the NAs when a Lead left the post, often leaving a gap which took some time to fill:

NA1 – He wasn't interested, you could see he wanted to leave when I met him, but I was lucky enough also by meeting him to meet me with who was to be (I thought at that time) the new Lead, who was very open to the concept of CCBT in [PCT name]. I felt that it could be positive. And I arrange to meet her, only to discover, when I phoned up, that she wasn't very well and then phoned up again and I was told she wasn't returning. And then I know that you phone the following week and she was there. And I think that's indicative.

LP – [...] from what I understand, you have being dealing with the person who did not return in the end and, when I showed up later [for another meeting], there was actually another person again. So it looks like there has been a very high turnover rate.

Management

The second sub-theme identified within this category was management. Almost all NAs insisted on the necessity of good managerial practices for *FF* to succeed. For them, 'good management' meant setting targets for workers and making them accountable if they did not meet those targets:

> *I would pick a lead or somebody to champion FearFighter giving them targets and goals to achieve and make them fully aware of the process from the cost, how many people they need to get through to make it cost-effective and I would give them some power and responsibility to be able to make it work (NA5)*

Not surprisingly, Leads largely ignored this sub-theme. Pointing to better management as a way of increasing *FF* usage could have implied that current management practices were inadequate. Only two Leads discussed the importance of managerial factors in boosting usage. The first Lead identified clear instructions given from the top (the Mental Health Commissioner in that PCT) as one of the reasons why his team showed a steep increase in *FF* usage after several months of relatively low performance:

> *LP – So, on one hand, [summarising success factors mentioned by the Lead] it is promotion within the team, more awareness, more understanding-*
>
> *L24 – And also from the top (senior team, the director) saying "this is what we want to do and this is what we want our staff to be doing".*

Another Lead, when discussing how he was trying to manage the strong preference for face-to-face treatment by Step 2 workers and their supervisors (Step 3 workers), highlighted the importance of putting pressure on his staff by making them accountable for outcomes in their respective teams:

> *L32 – How we have tried to manage that [Step 2 and Step 3 workers' preference for face-to-face] is really put the pressure on our supervisors around their responsibility for outputs and outcomes in their teams.*
>
> *LP – In terms of numbers.*
>
> *L32 – Yeah.*

And the associated difficulties in doing so:

I think that has been the struggle for lots of IAPT services. Performance managing staff is new to psychological therapists. No doubt about that. We do it quite well here but it is a shock to people. They are not used to it. (L32)

Despite 2 Leads mentioning management as a booster, the vast majority (17 out of 19 Leads) did not mention it. For this reason, this sub-theme was assigned to the NAs only and was coloured in blue in Figure 3-3 on p.125.

Divergence of options about CCBT between management and Supporters

Within a complex organisation like a PCT, it is not surprising to find a wide range of options among different stakeholders about the value of CCBT. The NAs described Mental Health Commissioners as the group of NHS professionals who better understood the potential of CCBT for increasing the number of people treated and its cost-lowering implications. Some of the Leads clearly supported CCBT, some didn't. However, the dividing line perceived by several NAs was between management as a whole and the workers delivering *FF* to patients:

I think the clinical leads and the managers have the same vision as the commissioners in that they want to get people off the waiting list, they want to get people on the program. I think the sticking point is the Graduate Mental Health Workers and PWPs. I think they are the people who can't see the benefit. (NA4)

In some cases the divergence reached almost the stage of a conflict within the organisation. In one PCT, the management would have liked to have put more emphasis on CCBT but feared that if they did so, most of their staff would leave:

In a recent meeting that I was involved in [PCT name], where I met with all of the management and the senior management clearly stipulated they weren't happy with throughput across the board - nothing to do with CCBT. For example, PWPs between 12 and 20 people a week, they considered this to be nowhere near enough people to be seen, but they felt if they were to start utilising the CCBT packages they had and starting making people use them, because of this prevailing attitude that one-to-one is better [...] the management said, quite categorically, "We are concerned that, if we did this, our people would leave". (NA1)

Marketing

Finally, the last organisational variable found to associate with higher usage of *FF* was marketing. In this dissertation, 'marketing' does not only indicate active commercial promotion of *FF* within an organisation; it means also spreading *awareness* of the innovation among a variety of stakeholders, within and outside the team implementing it. Marketing was a very prevalent issue in the Leads' interviews. In a few circumstances, it was pinpointed as the *real* factor which caused a documented increase in throughput. In the example below, this Lead discusses how raising awareness about *FF* with the Gateway Workers (staff liaising directly with GPs and able to make direct referrals to the team delivering *FF* in the area) caused an increase of usage:

> *LP - Were there other significant changes (not related to staff changes) so that the referral rate went really up or really down for some other reasons?*
>
> *L29 - I think it went really up when we did the work with the Gateway Workers. We had waiting lists for FearFighter. I think, when I first met you, I was operating waiting lists for the program so at those points, I think, it was probably higher.*

However, in most cases, marketing was discussed as a *hypothetical* success factor. At the end of every interview, the interviewer asked each Lead the top 3 things they would do to increase the usage of *FF*, in the hypothetical scenario that they had to make CCBT a success in their organisation and they could decide freely about every aspect (program, staff, how to spend money etc..). Many Leads said they would promote it more. In most cases, the Lead seemed to mention marketing because they had a clear idea of how it could practically work for his/her team. On the other hand, especially in teams less successful at implementing *FF*, some Leads seemed to point to marketing as the "easy solution", and it seemed this was the only idea they had:

> *L23 – [discussing what she would do to make FF a success] Uhm... I would definitely have more staff training.*
>
> *LP - Do you mean more training for staff on CCBT?*
>
> *L23 - Yep <silence> And... <long pause> oh well… I don't know, I suppose better publicity around it.*

Another element which became evident through the interviews was that Leads believed responsibility for marketing should not lie with their team. They often expected someone outside the team to shoulder the burden of doing the marketing:

I think that if there was awareness out there at a strategic level that this was a treatment option that was available to local people, then many more patients would have been aware that it was available but that onus was left to practitioners to inform service users about treatment options. I just think that the implementation fell down around a general lack of awareness from GPs right through to service users. A lot of the responsibility for promoting it was left to practitioners and I think that cannot really work effectively. If service users are already informed at the point of referral, then it is much more likely that they would be giving it some thought as a treatment option, rather than saying it was something being "fobbed off". I think that is something that gets in the way when the practitioners are left to talk about CCBT and the benefits of using it and then they find out that they can actually speak with a practitioner, they are going to go for the practitioner.(L16)

Conversely, the NAs assumed that it was not only down to them to generate awareness, but the PCT had an important role to play in this process:

I think that as a company, we really need to impress on the PCT that it is their responsibility to create awareness as well. We will assist them but they have to raise the profile as well. But they seem to buy it and relinquish all responsibility of raising the profile to us. (NA4)

Before discussing the last theme (the role of the change agency), it is worth mentioning two factors which boosted *FF* usage in a few teams. These issues were not identified consistently across many interviewees, so they were not considered reliable enough to be considered sub-themes on their own and were not included in the thematic map. However, they illuminate important processes by which *FF* throughput can suddenly increase, so they are discussed below.

CCBT as a way of coping with referrals

IAPT services are outcome-driven; their benchmark is the number of patients Mental Health Commissioners expect them to be treating each year. Most teams seemed to be achieving their targets, so there was no pressure on them to operate in a different way. However, other teams were struggling to cope with the huge number of referrals and for them CCBT and psycho-educational groups seemed particularly attractive options to operate in a more time-efficient way, especially when the increase in referrals coincided with a reduction of staff:

L24 – In the first year of IAPT, we didn't get a lot of referrals to CCBT at all. It became a service priority about a year after it started, things very much picked up since then. I would imagine this by the time our licences come up, we will be pushing the numbers.

LP – Why did it become a priority?

L24 – We have got a lot of people coming through the service, we'll never be able to meet the need of the service. Also, I don't know if you know, we've just had a decision made that the 3rd year of IAPT is not going to be funded in [PCT name], so we will be 18 staff down (PWPs). We are promoting and developing the psycho-educational groups and CCBT.

CCBT as a novelty

Some teams, especially the less successful ones at implementing *FF*, showed an initial high uptake followed by a brusque decay in the number of patients using the package. Typically, the launch of the service coincided with new staff exploring treatment options and therefore they were"giving *FF* a try", although this increase in referrals tended to be temporary and short-lived:

LP – So here you have got a peak at the beginning [...] Did you have a waiting list at this stage because in some services, when they start, they have such a massive waiting list that they tend to put a lot of people on.

L32 – Yes, we did. That is the obvious thing, isn't it, that October 08 was the start of our programme.

LP – People were saying "that is something we should try".

L32 – Yes.

A similar increase in usage seemed to occur when a new version of *FF* was released. Further to training on the new package, enthusiasm spread across the team, and a burst of referrals to the program was common. However, they too tended to be short-lived and within few months the usage returned to the pre-training levels.

CCBT 'blended' with other treatments

The fifth theme identified in the data related to actual practice – i.e. how *FF* was truly used in routine care. Before being recommended by NICE in 2006, *FF* was subjected to

testing, in the form of 2 RCTs and numerous open studies (for a review of *FF*'s evidence base, see p.48). Since its inception, *FF* was designed to be a comprehensive and independent treatment, including all the necessary therapeutic components for patients suffering from panic and phobia. It was not meant to be mixed with other treatment options, some of which (e.g. relaxation) are known to be ineffective when compared to the main therapeutic ingredient used in *FF* (exposure therapy). In RCTs, stringent inclusion and exclusion criteria meant that patients using *FF* were a highly-selected and homogeneous group. This dissertation however, shows that in routine care this is seldom the case. Leads often reported that their staff often used *FF* together with other interventions:

> *The staff here don't use things in the purest form and I think if you try and get things in the purest form you are not going to do it [...]The way that the staff use telephone treatments here [...] they will see somebody for assessment and recommend the telephone treatment so they will pick up the telephone treatments but they will put in say 2 telephone treatment sessions and then a face-to-face. Then a couple more telephone treatments and then a face-to-face session to conclude the therapy. They do the same thing with CCBT. I am happy for them to do that because it is a good way forward and it incorporates everything that we need to do. (L5)*

The use of *FF* in conjunction with other interventions was also confirmed by the quantitative analysis of the Supporters questionnaires (p.101), indicating that only a minority of the workers (28%) always used *FF* on its own. Why is this the case? What are the reasons why *FF* is often used in conjunction with other interventions when delivered in routine care?

One of the main reasons *FF* was blended with other treatments was that patients often presented with other problems in addition to their panic or phobic disorder. In some IAPT services, Leads talked about how in the local area IAPT represented the first real provision of primary care mental health, so the referrals they received during (at least) the first year of operation, tended to be patients on the more severe end of the spectrum. GPs had known these patients for many years, and when the IAPT service went live, those patients were referred in high numbers. That meant that these users presented with either more severe symptoms or with comorbid problems (e.g. joblessness), problems which were not necessarily addressed by *FF*. It was then considered appropriate to give the patient access to other options to tackle the additional difficulties.

An important point the Leads emphasised was at which point in time *FF* was being offered to patients who were also using other interventions. Supporters were creative in finding ways of offering *FF* to patients at different stages along their care pathway, whether before, during or after receiving another intervention. It might be expected that an intervention like *FF* would have been used mainly with patients while waiting for another treatment. In some cases, this was the case, as this Lead reports:

> *They may take up CCBT as a secondary service because of the waiting list for counselling. They are not entirely motivated by it but it is better for them to be doing something rather than nothing. For me it is like an option for them, they can wait 3 months but what are they going to be like in 3 months - are they going to be 3 months worse? They need to get engaged with something to keep them on track. I don't think that is a bad thing. I think that is a good thing. I hate the fact that someone can come in and all we can say is go away and come back in 3 months. People are usually in a pretty bad way to actually engage in the service anyway. The last thing they want to hear is "come back in 3 months". (L17)*

However, in most teams this was not the usual practice. One Lead openly mentioned the risk of offering CCBT while waiting for another treatment, following what he called the "access to something is better than access to nothing" mentality.

> *L32 – They [staff] are seeing it as a very different thing – like "access to something is better than access to nothing".*
>
> *LP – Even though it is not the right thing for them.*
>
> *L32 – Exactly*

Offering CCBT in such a fashion can send the implicit message to patients that the real treatment worth waiting for is face-to-face therapy with the clinician, while CCBT is little more than something to try while they wait. It could even be an inappropriate treatment, if the prescribed CCBT was not suitable for the patients' presenting problem. For a patient with (say) shingles, it would be like taking an aspirin (CCBT) while waiting for anti-viral medication (the face-to-face therapy). By the same token, CCBT was mentioned as a possible option to be integrated within Step 3. Conventionally, CCBT has been considered to sit within the range of Step 2 options available to more junior staff (PWPs), but the possibility of using CCBT in combination with high-intensity therapy was discussed by some Leads:

I think actually it is a great way of enhancing what you are doing, of developing a structure around homework and around extending therapy outside the therapy room because, obviously most of it has to be outside the therapy room.(L32)

Other participants emphasised the wish to use CCBT more on the preventive side, as a tool to reach those patients before they achieve caseness (in IAPT terms), so something which could be used more by the GPs rather than the mental health services, giving it to individuals perceived to either be at risk of developing a mental health problem or to those experiencing sub-syndromal symptoms:

My dream is that we would provide this service to people who are currently working, before they get to the crisis mode, so preventive, promoting, good thinking practices. I think these are excellent tools to help that and are not just for people who are ill and in crisis. (L17)

By contrast, other participants highlighted how CCBT was being used in their service as a relapse prevention tool. It was prescribed after patients had completed treatment, so that they could login to *FF* (or *BtB*) and use these programs as booster sessions to maintain progress:

L2 – Something to maintain progress or to emphasise some of the issues that you have been dealing with. I think it can be really useful in that kind of way.

LP – But not as the main treatment?

L2 – As a stand-alone measure I think it has got limited possibility.

The role of change agency

The sixth and final theme identified through the thematic analysis was the role that the change agency (CCBT Ltd) played. Leads and NAs did not believe that all factors influencing *FF* implementation were under the control of the PCT. At least three factors were identified among areas which can be influenced by the change agency: product(s), training, and working relationship with PWPs.

Improved product(s)

The first thing identified by both Leads and NAs was the necessity for improved products. These comments referred both to *FF* (the intervention *per se*) and to the back

office system (the Patient Progress Monitoring System - *PPMS*) which is used by staff to set patients up and monitor outcomes (for a more detailed discussion of the *PPMS*, see p.49). In general, no harsh comments were made about *FF*, but Leads had numerous suggestions on how the program could be improved, whether it had to do with its layout or with adding new content:

> *LP - The negativity was more down to the layout, the presentation of the program or perhaps the structure, the fact that there was some criticism about how FearFighter worked, the process, some parts [for instance, cognitive restructuring] were missing from FearFighter…?*
>
> *L35 - Yes, I think both. The presentation needed to be more sophisticated and more attractive and current, but also I think there was a feeling that there was some psychoeducation missing, that was something to be supplemented.*

The NAs as well mentioned numerous areas for improvement, showing their capacity to reflect on the limitations of the interventions they were promoting. The *PPMS* in particular was identified as something requiring urgent attention:

> *For example, the questionnaires, marrying up the [IAPT] questionnaires with PC-MIS. That is a massive benefit for PWPs and PCTs and for Trusts. (NA5)*

Facilitating the dialogue between each Trust's IT system and the *PPMS* was confirmed by many Leads as an important added value, making it more likely that Supporters would use *FF* more:

> *If there was a data warehouse process that everything a patient did on their CCBT automatically transferred into PC-MIS [the Patient Management System used by this team], my step 2 workers are going to go "BINGO! I can do less for more". (L32)*

Improved CCBT training

A second factor under the control of the change agency was the training delivered by CCBT Ltd. The NAs perceived their own training to be too didactic, relying mainly on a PowerPoint presentation and with little room for "hands-on" practice by the workers. This was mainly due to logistics difficulties. Quite often, arranging a suitable venue for the training posed numerous challenges. Rarely it was possible to book a dedicated IT suite with electronic whiteboard and one internet-connected computer for each trainee.

Most of the time training sessions took place in locations where internet access was not available. At times, not even a projector was accessible on site and had to be arranged separately. NAs looked into ways of improving their own training, and emphasised the importance of shortening the presentation, focusing less on CCBT background, rationale and evidence base and more on practical aspects (how to do things):

> *I think the training is quite dry, people find it quite dry and quite lengthy. It is difficult to think of how it can be improved because it would be quite difficult to make it any different to how it is really. I think on the second half of the training where you are looking at how to create patients and things like that with the video, I think that that may be a voice on that video so it is in time with the mouth movements on there would be a good thing. And I think maybe having that slowed down a little bit. (NA2)*

Close working relationships with PWPs

The last factor under the control of the change agency was the importance of developing close working relationships between the NAs and the PWPs. Most NAs acknowledged that the *FF* implementation had essentially been a top-down process. *FF* was approved by NICE in 2006 and, immediately after that, a national roll out followed. Opportunities to pilot the program in selected localities were rare, and no audit was possible before full-scale implementation. Most Supporters felt they could contribute little to how *FF* was implemented in their service. Hence, NAs stressed the importance of working alongside the PWPs, as a way of giving them a voice, as the NA below describes:

> *I think that the key to actually improving throughput and people continuing with the programme would be to actually work alongside the PWPs. I think because the PWPs have seen so many changes and been advised on how to do things by their managers and everything is coming top down, they feel like they need a bit of a voice and I think somebody going in and actually working alongside the PWPs and seeing how the programme works. Just being the port of call and being there regularly would actually help improve the throughput and raise the profile of FearFighter and make it the forefront of their minds so that when they are assessing patients they are thinking of FearFighter and ensuring that they get some positive experiences through using FearFighter as well. (NA2)*

Relationship between quantitative and qualitative data

The thematic analysis presented so far offers a rich picture of the many interacting reasons influencing implementation of CCBT in Primary Care Trusts. In particular, qualitative data highlighted several areas of convergence with the quantitative findings reported in the first part of this chapter, and it helped explain why numerous independent variables did not associate with the dependent variables as predicted.

Areas of convergence

Many factors found to be important in the quantitative analyses were confirmed by the thematic analysis. In regression analyses, 'alternative interventions to CCBT' was found to associate to *FF* throughput and completion rates, both at the Supporter and Leads' levels, and it was a central theme of the thematic analysis. Management was another significant sub-theme, discussed mainly by the NAs but in accord with the quantitative finding that the Leads with a mainly managerial background used *FF* significantly more than those who had a mainly clinical past experience. Regression analyses on the NAs' questionnaires recognised the importance of a flexible and adaptive PCT in predicting higher usage of *FF*, and the qualitative results indicate how the rigidity of staff in not being willing to try new interventions was an important barrier.

Other important data coming from the analyses of the Supporters' questionnaires agree with qualitative findings. Face-to-face therapy was ranked as the most-preferred treatment option by workers in the questionnaires, with pure self-help being the last and CCBT the one before the last. As discussed above, preference for face-to-face care was a crucial theme which was identified by both Leads and NAs as responsible for the Supporters' resistance toward CCBT. Another important area highlighted by the qualitative analysis was the treatment decision-making process, driven by Supporters and patients. This is in accord with 69% of workers reporting that the treatment decision-making process was a collaborative process between them and the patients, in which both contributed in equal measure. The majority of Supporters (72%) stated they were using *FF* with other interventions, which again was found to be true in the qualitative analysis (the 'blended' use of CCBT). In terms of *FF* training, only 17% of the workers participated in the *FF* training before they took part in their (main) professional training. The qualitative analysis emphasised how critical it was the IAPT training in shaping Supporters' preferences about several treatment options, so if most

of the workers attended the *FF* training during or after having completed the IAPT training, it is likely that its impact would have been reduced as opposed to someone who had been trained first on CCBT and then attended further training. Finally, 77% of supporters stated in the questionnaires that their patients preferred other treatments to *FF*, which was confirmed by Leads in their interviews.

Case studies

The following case studies describe in detail two teams in which the implementation of *FF* had a very different fate. The criterion chosen to select the two sites was *FF* throughput (high vs low number of new patients starting *FF* on average each month). In the first site (no. 31) *FF* was successfully implemented, the usage of program was high throughout the whole period and staff were happy with it. In the second example, after a seemingly unproblematic implementation, a series of problems began to emerge. *FF* was marginally used, and it was ultimately discontinued.

Site 31: a 'high performing' PCT

Site 31 is a PCT which went live with *FF* in April 2009. The Service Provider was initially a third-sector organisation and operated as a CCBT-only service until the end of September. This was the pilot phase, in which the service provided only *FF* and BtB. Four GP surgeries and 2 Universities could refer patients for CCBT. During the pilot, the service received approximately 40 referrals a month (for both CCBT programs). Seventy-three patients started *FF* in the 5 months of the pilot, yielding an average of 14.6 patients per month. Forty-eight percent of these patients completed the program.

After a brief interval to prepare the launch of the new service, the IAPT team started accepting referrals in October 2009. All GP surgeries within the PCT's catchment area could now refer into the IAPT service and the range of treatment options widened. The average number of referrals per month shot to 1,000. Although the total number of referrals increased approximately 25 times, the usage of *FF* actually decreased from 14.6 to 9 patients each month. Completion rates also decreased to 40%. To date, the same service is still an IAPT site using *FF*.

The interview with the Lead was cordial and rich with detail. It lasted longer than expected (1 hour and 29 minutes), and the PI had to curtail it in the end to avoid overrunning excessively. The Lead was an Operational Manager with no previous clinical experience. She had many years of managerial experience in the supermarket retail sector before making a career switch in 2007 and choosing to work in mental health. During the interview, she discussed reasons why the pilot proved particularly successful, identifying 'dedicated CCBT worker' and 'good relationships with GPs' as the 2 main factors contributing to it.

The NA who was working with this team spoke very positively of the Lead. She described her as "very good" and "hard working" (NA5). This NA dedicated substantial time and energy to this site during the initial implementation stages, to help set up the service and assist the new team getting confidence with *FF*:

> *NA5 – I worked in [PCT name] on an honorary contract for about 6 weeks to help support the implementation of CCBT in general really.*
>
> *LP – So basically you think that might be one of the reasons why you had more frequent contact with them.*
>
> *NA5 – Yes.*

Through the pilot, support to patients was offered by 2 workers who operated sequentially. At a single point in time, only 1 worker was offering support, with the exception of a brief overlap where the previous worker trained the new one. In effect, there was a dedicated worker whose only focus was to deliver *FF* and BtB. The continuity in the availability of dedicated staff was identified as very important by the NA:

> *Some of the reasons why [site name] has worked well is because they have identified one person to lead on CCBT in general. That person has changed but it has been one continuous person who has really just worked all week on CCBT referrals. (NA5)*

Support to CCBT patients was provided either face-to-face or by phone. It was up to the patient to decide. Both the Lead and the NA recognised the importance of offering to patients the option of having face-to-face support, to facilitate the initial login and, more in general, to be supported in this way, should they prefer so:

We were trying to book the face-to-face because we like to get them set up on the system and talk them through the first session. We found that it worked quite well (L31)

NA5 – She has got an office in a unit where she can invite people in to assess people and support them if necessary. So really if people are computer phobic or need that little bit of extra support, she has got that time in her diary where she can invite then in.

LP – So in a sense the support is done mostly over the telephone but whenever the patient wants, there is the option of face-to-face.

NA5 – Yes, and I would reckon 20%/25% of the population probably wanted to come in at some point, whether it be for the first appointment or for continuing support.

Of the two Supporters involved in the pilot, the second one continued as a CCBT-dedicated worker even when the service became IAPT. Because of her previous CCBT experience and the specific knowledge acquired, the Lead was happy for her to continue in this role. The Lead stressed how the depth of training and the ability to see results with patients utilising CCBT were the key factors responsible for her favourable attitude toward this new treatment modality:

LP – Do you think (at least in part) that [her favourable attitude toward CCBT] may be due to the fact that there are clear roles and responsibilities for her, and there are no other options in terms of other interventions she could offer (like face-to-face or books or etcetera), that could really impact on how enthusiastic she is about CCBT? [...]

L31 - I think that it has more to do, Luca, with the depth of training that she has received.

LP – So if [Supporter's name], for instance in the future, she could deliver many other interventions as well, like face-to-face, guided self-help, she could run groups with patients, etcetera... you don't think that her attitude towards CCBT would change?

L31 - <pause> I don't think it would, because I think that she's worked with it now for long enough to see results, provided that the client basis is correct.

The Lead insisted on the importance of having staff specialising on CCBT rather than opening it up as a treatment option to all workers. She believed that this would help create "CCBT specialists" within the team who focus on this intervention modality and can take referrals for CCBT from other members of the team:

> *LP – If you have to expand CCBT in the future... let's say you need to deliver more CCBT, you need to have five or ten staff [for CCBT], would you be recruiting another nine or ten [dedicated worker's name] or would you ask the PWPs you have got to take part into this? If you could decide freely, just thinking about best outcomes.*
>
> *L31 - If I could decide, then I would have people who specialised in CCBT.*
>
> *LP - Ok. And the rationale for that would be?*
>
> *L31 - Because they would able to specialise within the area, I believe there would be a better level of support to the clients doing the CCBT, a better level of understanding from the practitioner delivering it. I think it would be very difficult (with all of the other therapies that are available for PWPs now) to be able to get that specialist knowledge.*

The second element emphasised by the Leads was the importance of developing a good relationship with GPs. Contrary to most other sites, GPs involved in the pilot were able to refer directly to *FF* and the team receiving the GP's referral tended to follow his/her indication. These GPs recognised the importance of mental health issues and complained to the Mental Health Commissioner about the lack of CCBT in the area. They definitely perceived a *need* for *FF*. Here is how the Lead described the attitude of the GPs taking part in the pilot toward CCBT:

> *The people we used in the pilot were GP surgeries who were banging on the commissioner's door saying "when are we going to get CCBT"? You can [unintelligible], for the last year "CCBT is coming, when are we going to get there?". Because they have been banging on the door, we knew that they were mental-health focused. They wanted something to give to their patients, up and above what there was already. (L31)*

With IAPT, however, things changed. The option for GPs to refer directly to CCBT was removed, as it was felt inappropriate to put one treatment in front of others. Within IAPT, it was down to the PWP to decide the most suitable treatment for patients:

L31 - In the pilot all the GPs had a specific CCBT referral form.

LP - And at the moment it's not there anymore, in IAPT?

L31 - No.

LP - Do you know why that's the case?

L31 - Uhm <pause> We decided to take the form out of the equation because with IAPT CCBT isn't the only choice. Prior to IAPT, CCBT realistically was the only choice in [PCT name]. We do not have a referral form into IAPT and so I don't think it was appropriate that we continued to use the referral form.

LP - You didn't want to put one treatment, that is just one among many others, in front…

L31 - Absolutely, and it is about the PWP (working alongside the client) to decide, out of all the therapies we've got available within IAPT, what is most suitable for the client.

Site 23: a 'low performing' PCT

Site 23 was a PCT which purchased a 3-year contract for unlimited *FF* licences in March 2008. The order was faxed to CCBT Ltd at the end of the financial year. The Mental Health Commissioner, on his own admission, needed to "act quickly in order to pay within the current financial year". In short, end-of-year spare money was spent on *FF*. Initial meetings were set up with the Service Manager and the Clinical Lead to discuss "Firefighters" (the name given to *FF* by the Service Manager). The PI delivered the training to Supporters in August 2008 (this was before the NAs were appointed) and the team went live with *FF* at the end of October 2008. The site was not IAPT at the time and it migrated to IAPT status in 2010. Self referrals were not accepted during the months in which *FF* was available to the team. Overall, the implementation proceeded without major obstacles.

Initially, the Clinical Lead (Consultant Clinical Psychologist) was the main contact person within the team with regard to *FF* implementation. However, she soon delegated all her *FF* responsibilities to the Service Manager and, while she was approachable during the implementation phase, as the months went by she became more and more difficult to get hold of. The Service Manager remained in post until June 2009, when

she left to take up a new job. An ex-army colonel was appointed as Interim Service Manager and he remained in post enough to meet with the NA covering the area. In the interview, the NA described his first meeting with him:

> *NA1 – I've got involved the first time and there I met an ex-army colonel or a major and he had a very strange name, can you remember what he was called?*
>
> *LP – Ah, I perfectly know… I know who you mean…*
>
> *NA1 – I met him and I wasn't very impressed because he was leaving, he was leaving the service when I met him, and it was quite obvious that he was leaving, that he had a very negative approach not only to us but basically to [service's name] full stop.*

After the ex-army colonel left, another lady was temporarily appointed to replace him. Usage of *FF* was very low (since May 2010 throughput had dropped to zero) and the NA was urgently trying to arrange a meeting with the new appointee to find out what was happening. Calls were hardly returned. It took 3 months to arrange a service review. Here's the NA's account of those months:

> *The lady that we liaised with, she told me that she was leaving the following day, and she did, so subsequently no clinical lead, no one to liaise with thereafter, so subsequently it was impossible to arrange any follow-up workshop, it was impossible to get integrated within the team, it's impossible to actually get relationships, and because of that we can't have an impact there (NA1)*

By that time, it was clear that the Clinical Lead was not interested in being involved anymore and she systematically avoided contact with the NA and with CCBT Ltd in general. A further Interim Service Manager was recruited and she acted as the Lead when the interview took place (22nd June 2010). At that point, she had been in place for 4 months. Her interview lasted only 31 minutes, compared to the 1 hour and 29 minutes of the Lead of the 'high performing' PCT. Half way through the discussion, monosyllabic answers became more frequent and toward the end it became clear that she was keen to terminate the interview.

The first thing she highlighted was that, besides the high turnover of the Leads, 80% of PWPs left in September 2009 all at the same time, immediately after having qualified. Such a situation was unheard in other PCTs which took part in the research, and pointed to some serious organisational issues which the Lead did not seem to want to discuss.

Non-verbal cues suggested she might have been aware of underlying issues responsible for the PWPs' sudden departure, and the interviewer had a sense that she did not seem to want to discuss or could not tell:

LP – ... [on the questionnaire] there was question number 23 about staff turnover and, back to your point earlier that all of them are in training. That's why you were saying 80% [on the questionnaire] so it's a big turnover over the last year?

L23 - Yes, and apparently there was a previous staff team and trainees now qualified and left the service <smiles> in September, so all of the trainees are brand new trainees.

LP - But do you know why they all left the service?

L23 - I don't know, I don't know [...]

LP - But they were qualified, they had qualified.

L23 - They had qualified, yes.

LP - But then they left at the same time.

L23 - <ironic laugh>

In terms of interventions offered to patients, guided self-help was very popular and it accounted for 60% of all interventions offered. Everything was delivered by the PWPs in a traditional 1-to-1, face-to-face setting:

LP – [discussing treatment options] I was surprised by the 60% of guided self-help, so I presume you mean books in this case?

L23 - No, guided self-help is the face-to-face intervention that we do. We do usually use kind of books, I think it's Chris Williams' books, to fight anxiety, to fight depression and then it's the face-to-face intervention, so the majority of people treated at Step 2 do have that kind of intervention.

LP - Ok, so it's done in a face-to-face setting. Is it one-to-one or-

L23 - Yes, one-to-one.

LP - So it's a one-to–one, face-to-face setting but in every session you use books within that setting?

L23 - Yes.

The Lead emphasised patients' willingness to have some face-to-face contact several times during the interview. She reported patients being happy with guided self-help as treatment modality, choosing it mainly for the face-to-face contact:

> *LP – For sure, if you have got 60% of people choosing that it looks like people are happy with this and this is probably very successful [as an intervention], I guess.*
>
> *L23 - Yes, yes, definitely the option that most of the clients want to have, yes.*
>
> *LP - Do you think it's because people might tend to prefer reading a book instead of using a computer, or you think-*
>
> *L23 - I think it's more about the face-to-face contact with somebody.*

Treatment decision-making was driven mainly by the PWP. She described in detail the process by which each patient case was discussed with a supervisor and how the resulting decision was fed back to the client:

> *What happens is, after the person being assessed, then the PWPs would tick that case to allocation and then they'll discuss with a secondary supervisor what emerges from the assessment and they'll discuss what they think the best treatment option would be, and this is dropped back to the client and [unintelligible] you might approach client "we think, from what you have told us, the best approach would be CCBT and this is how it works…" (L23)*

When discussing CCBT more specifically, the Lead showed scarce knowledge. This was due in part to her having been appointed only 4 months before the interview. However, it seemed to the interviewer that CCBT might not have been a priority for her. She was not interested in understanding who were the most suitable patients for it:

> *LP – I'm just wondering about CCBT - you were saying 5% roughly [take up] - who are these people who choose to start CCBT? What are their characteristics?*
>
> *L23 - Uhm... I have no idea. It's the honest answer for that <laughs>.*

Beating the Blues™ was the other NICE-recommended CCBT program which the team had purchased licences for. The Lead did not know licensing arrangements, but she was aware that it had been discontinued:

> *LP – Moving forward to question number 34, you mentioned that you provide FearFighter and have provided Beating the Blues in the past. We know that you*

started Beating the Blues in the beginning 2009, from 1st of February. Was it a one year contract?

L23 - I'm not entirely sure, I'm not sure about that.

LP - But at the moment is not in place anymore, so the contract-

L23 - We don't use that.

Not surprisingly, the Lead expressed a general lack of confidence about *FF*. To address this, an afternoon workshop was arranged by the PI with the PWPs to discuss problems related to *FF*. Before leaving home in the morning, the PI called to check how many PWPs were expected to attend. The Lead confirmed that 6 people were expected. However, only 2 workers attended and both left after 50 minutes (although the workshop had been scheduled for 2 hours).

LP - So, you mean, perhaps at the moment there is a lack of confidence in the staff about CCBT?

L23 - <confirm>

LP - People are not sure how much it works, etcetera...

L23 - I'm not really sure how it works. How the package itself works. Therefore they don't feel they would be confident if the person that was doing the CCBT had a question about the program.

In September 2010, this Lead too left the post. In total, during the 3-year unlimited contract for this PCT, only 22 patients used *FF* and just 4 patients completed the whole program.

Open-ended questions from Supporters' questionnaires

In addition to interviews with Leads and NAs, open- ended questions in the Supporters' questionnaires about barriers and boosters and about things liked vs. not liked were coded. This part of the analysis follows an inductive (bottom-up) approach generating 110 new items from the data. However, due to the brevity of coding units and its consequent difficulties in generating a code (they were usually a single statement, sometimes a single word – e.g. "simple"), it was considered impractical to conduct a thematic analysis and quotes cannot be reported. See p.241 for all results. Results in this

section must be interpreted with caution for two reasons. First, frequency counts are quite small. Second, frequency counts do not imply linearity (an item receiving 10 mentions is not twice as important as an item receiving 5 mentions).

Barriers/Boosters

Supporters described perceived Barriers and Boosters in their service for a successful *FF* implementation. Items were grouped into categories regarding program-specific (*FF*) factors, patients, Supporters, Service Provider, GPs, and Marketing. The *FF* category was further divided into 3 sub-categories: *suitability (for the program), technical (IT) aspects,* and *general.*

Marketing was the most frequent (boosters) category across Leads and Supporters. Consistently with the thematic analysis which identified "CCBT blended with other intervention" as one of the main themes, the second most- common booster (for Supporters) is *integration with other treatments* (i.e., using *FF* not as a stand-alone intervention but in conjunction with other psychological treatments, mostly face-to-face). Major barriers identified by the Supporters were that *FF* is perceived to be *phobia-specific*, with issues around *appropriateness* (mainly because it's considered to be too phobia-specific, thus limiting its applicability to cases of Generalised Anxiety Disorders or Mixed Depression and Anxiety). Items in the *patients* category (in particular, patients' *preference for other treatment* and patients' *motivation* and *choice*) were identified as important barriers too.

Like – Don't like

Supporters only were asked specific things they liked/didn't like about *FF*. Leads were not asked the same questions as not all Leads were familiar with *FF* from a Supporter's point of view (very few Leads used *FF* with patients and went through it as stooge patients).

Among the things they *liked*, Supporters liked the fact that *FF* is *simple* to use, *structured* and *accessible* to patients. They also liked its *effectiveness* and its *psycho-educational content*.

Among the things they *didn't like*, Supporters pointed out that *FF* is perceived to be *phobia-specific*, having high *drop-outs* , and *inflexible*.

4. DISCUSSION

Presentation of the key findings

The results of this dissertation suggest that many different factors interact in complex ways to determine the fortunes of *FF* within each PCT. An unequivocal finding of this study is that there is no single 'magic button' that can be pushed at the beginning of implementation in order to determine future success regardless of the setting in which *FF* operates. The quantitative analysis identified a set of factors which, across the different PCTs, Service Providers and Supporters, associated with higher or lower throughput, completion rates and clinical improvement (as measured through the WSAS recovery rates). However, statistical association does not mean reliable prediction. Most of these factors are not stable predictors independent of context and time. It is thus important to study each setting diachronically, to understand how factors interact over time to account for the fate of *FF* in each organisation. The case studies discussed on p.159 and p.163 showed how these 2 services changed substantially for reasons largely independent of *FF*, and this had a direct impact on the use of the program. Predicting the destiny of an innovation like *FF* in the long run is no easy task, if possible at all. After a seemingly unproblematic implementation, problems might start to appear. What seemed to be important predictors suddenly lose their explanatory power in favour of new, unexpected factors which become dominant in explaining adoption.

In accord with the literature on complex, technology-based innovations (p.45), the present study found that in the implementation of *FF* the adopters and their attitudes are more central than the technology itself. The motivation, past experiences and training of Supporters who delivered CCBT to patients were considerably more important in explaining adoption than the characteristics of *FF*. Together with patients, Supporters were the key treatment decision-makers. Teams rarely followed instructions from the top, thus emphasising the crucial role of staff "on the ground". Supporters resisted using CCBT because they largely favoured other treatment options, as did patients. The IAPT training which PWPs received at various universities hardly mentioned CCBT, and this reinforced their perception of it as a secondary treatment option. Workers preferred face-to-face interventions, guided self-help books (often supported face to face) and psycho-educational groups. Books in particular were very popular in many teams. In

terms of career progression, CCBT was considered as offering fewer rewards than 1-to-1 face-to-face work with patients. In keeping with this, although support to CCBT patients was often offered over the phone, most Leads reported better results and higher satisfaction by staff when the same support was offered face to face.

Besides Supporters' attitudes, organisational practices and issues accounted for a significant proportion of the factors influencing the implementation of *FF*. CCBT was in general offered in conjunction with other interventions, thus highlighting once more the perceived limits of this treatment modality as something which needed to be supplemented by other interventions to address all the patient's needs. Open criticism of *FF* by Leads and Supporters was rare, possibly because they knew that the PI was an employee of the company marketing *FF*. Leads and NAs though reported suggestions on how *FF* could be improved, in particular with regard to the possibility of sharing its patient data with the IT system that teams were already using. High turnover of Leads was found to be a significant barrier to implementation, as well as temporary unavailability of workers to deliver the package to patients. Conversely, when extra staff were in place to deliver *FF*, this often resulted in higher take up of the program.

Hypotheses

Truth arises more readily from error than from confusion

(Francis Bacon)

None of the 5 hypotheses tested in this study were confirmed. Training sessions and workshops with the team did not influence *FF* completion rates (1st and 2nd hypotheses), visits to GP surgeries did not increase *FF* throughput (3rd hypothesis), patient support variables did not influence *FF* completion rates (4th hypothesis) and suitability for *FF* did not influence clinical improvement measured on the WSA. It is likely that the better support skills eventually gained by Supporters during their training/workshops were less strong than the factors revealed by both exploratory quantitative analyses and qualitative data, e.g. preference for alternative interventions (face-to-face therapy, books and psycho-educational groups). A different explanation is that training and workshops were ineffective in changing practice, which in turn should have led to the offering of better support to patients and thus an increase in patient-completion rates. Training was delivered by the NAs but they did not evaluate the trained workers' subsequent

comprehension or change in practice. With regard to surgery visits by NAs, qualitative data also showed that GPs very rarely referred patients specifically for CCBT. Although it is possible that the NA's visits might have led to more GPs recommending *FF* to their patients, this initial advice played little part in deciding which treatment patients would ultimately get, as very few services reported adopting the GPs' treatment recommendation, relying mainly on Supporters and patients to collaboratively decide which intervention to choose. GPs therefore turned out to be an incorrect target for promotion activities, as they were not the decision-makers about treatment.

Although not an initial hypothesis, training sessions associated significantly with throughput, indicating that *pre*-service meetings (Fixsen, et al., 2005) increased staff's confidence in deciding to use CCBT with their patients. Training sessions in Quarter 1 associated with more *FF* patients starting treatment in Quarters 2, 3 and 4, but training sessions delivered in Quarters 2 or 3 did not lead to increased usage, so not all training sessions had an equal effect. Perhaps NAs were new to the post in Quarter 1 and thus more motivated and giving better training. Over time, not seeing a rise in patients using *FF* (the NAs' main Key Performance Indicator for their job) might have demotivated them, thus resulting in poorer training. Alternatively, motivation may have remained the same but the fidelity of their training may have decreased over time. Training happened either when a new service was about to go live with *FF* or when an updated program was available and the whole team had to be trained on the new features in order to be migrated to the new version. On these occasions, *FF* was perceived as a 'novelty' (whether integral or partial) and the thematic analysis found that such perceptions were responsible for many of the peaks in *FF*'s uptake. Being in front of the workers with something new to show them was also a powerful strategy to jog their memory about the availability of *FF*.

Unlike training sessions, *in*-service meetings (workshops) did not increase throughput. The better effect of *FF* training sessions than of workshops is probably due to the different importance staff attached to the two events. In previous research clinicians wanted more CCBT training (Nordgreen & Havik, 2011). In the interviews, workshops were largely ignored by Leads and NAs. Both groups of interviewees made references to *FF*, but mentions of the workshops were very few, and no interviewee perceived them as important. While most services in this study considered training an essential part of *FF* implementation, fewer teams believed workshops were as necessary as training. Once *FF* training was completed, few Supporters expected to need further

guidance. Workshops focused on how to overcome initial teething problems in using *FF* as reported by staff members. Perhaps trying to find practical solutions to those barriers when clear preferences about treatments were already established within the team might have led some staff to "feeling pressured to use *FF* with patients", as one Supporter put it.

None of the patient support variables influenced *FF* completion rates (4th hypothesis). This is surprising, given the substantial literature reporting an association between support and adherence (p.31). However (see 'Limitations' below), the main problem in testing this hypothesis was the self-rated nature of these variables. Supporters were asked how they *normally* supported patients, for how long, whether face to face or by phone, etc... It was beyond this study's remit to reliably measure how each *FF* patient was actually supported. It is unlikely that participants would have had the time and resources to provide such data, and several teams (especially third sector services such as MIND) did not collect these data anyway. Another explanation why none of the support variables was found to associate with completion rates is that most Supporters taking part in this study had limited slots for offering support to CCBT patients, thus limiting how responsive they could be toward patients. In dedicated services, most of the workers' time is devoted to CCBT so they can respond promptly to patients' inquiries, while in services where staff have many other responsibilities the time for CCBT is restricted. Several Leads during the interviews mentioned how important it is for patients to know that someone could be contacted immediately in case they got stuck or had any other problem. In almost all teams, Supporters offered both clinical and first-level technical advice (e.g. resetting a forgotten password). If the technical problem could not be easily solved, then it was escalated to be solved by CCBT Ltd. Very few teams had admin staff available to offer 9-5 support to patients. It is therefore possible that the support offered to patients was quite fragmented and ultimately quite different from the more controlled support offered to those CCBT patients who had taken part in randomised trials.

Finally, suitability for *FF* (5th hypothesis) did not influence clinical outcomes. Marks et al. (2003) found that patients improved with CCBT if their suitability had been briefly screened using the 4 criteria on p.56. In this thesis, *absence of severe depression/active suicidal plans* could be measured reliably (the *PPMS* collected such data). *Presence of phobia or panic disorder* had to be inferred from Triggers and Goals ratings, while Marks et al. (2003) used a questionnaire and an interview checklist of ICD–10

diagnostic criteria. The last 2 criteria (*motivation to do self-help* and *absence of substance misuse/psychosis/brain damage*) could not be studied as relevant measures were unavailable. The present study's inability to quantify patients' motivation for self-help and different way of assessing the presenting problem might have weakened its measure of suitability, especially given the finding from the thematic analysis that most patients had low motivation to do CCBT and preferred other interventions.

Emerging findings from quantitative analyses

Quantitative exploratory analyses showed that several factors influenced *FF* outcomes when delivered in routine care. As discussed in the first paragraph of this chapter, these factors are not intended as stable predictors, but rather as emerging features associated with specific *FF* outcomes either at PCT, Lead or Supporter's level. They must therefore be interpreted with caution. They should be viewed as areas of interest for the development of future hypotheses rather than identified as "success factors" tout court.

Summary

Supporters who had used CCBT in a previous post were less likely to use it in their current post, while using CCBT combined with other treatments and preference for pure self-help associated with increased CCBT use. However, patients supported by workers who offered *FF while* giving other interventions had on average lower completion rates than patients who were offered *FF before* other treatments. In addition, Supporters who reported that their patients felt they were being given a 2nd class treatment had lower *FF* completion rates by their patients than did the other Supporters. At the team level, past experience of the Lead, number of self-help books available and length of assessment explained a high proportion of the variance in *FF* usage. A mainly clinical (as opposed to managerial) background of Leads, availability of many self-help books and long assessments all associated negatively with *FF* throughput. The availability of certain self-help books (*Overcoming Depression and Low Mood* by Williams, and *The Depression Helpbook* by Katon) associated with lower *FF* completion rates, as did accepting referrals from probation services. Phone screening associated negatively with clinical improvement of *FF* patients. At the PCT level, the number of training sessions done by Nurse Advisors (NAs) significantly raised *FF* usage and a PCT perceived to be

flexible and adaptive predicted higher *FF* throughput. Table 4-1 groups the quantitative findings in 10 main themes[27].

[27] TP=*FF* throughput, CR= *FF* completion rates, CI= *FF* clinical improvement (WSAS recovery rates).

Table 4-1. Synopsis of emerging findings from quantitative analyses

Theme	Factor	Level	Influences	Direction
Competing interventions	Using *FF* while (rather than before) giving other treatments	Supporter	CR	-
	Overcoming Depression and Low Mood (Williams)	Lead	CR	-
	The Depression Helpbook (Katon)	Lead	CR	-
	Total no. of books	Lead	TP	-
Screening/assessment	Length of assessment	Lead	TP	-
	Phone screening	Lead	CI	-
Past experience	Used CCBT before	Supporter	TP	-
	Mainly-clinical past experience	Lead	TP	-
Treatment preference	Preference for pure self-help	Supporter	TP	+
Normalisation of CCBT	Using CCBT with other treatments	Supporter	TP	+
Perceptions of CCBT	Patients feel they've been given a 2nd class treatment	Supporter	CR	-
Patients' suitability	Accepting referrals from probation services	Lead	CR	-
Length of service	Lead's no. of months in current post	Lead	CI	-
Training	No. of PCT training sessions	NA	TP	+
Organisational structure	A flexible and adaptive PCT	NA	TP	+

Alternative interventions

Alternative interventions emerged as the cluster of factors most consistently reducing *FF* usage. Books in particular lessened *FF* throughput and completion rates at the team level. Guided self-help books are popular at IAPT sites. In these services, patients received on average 5.8 more guided self-help sessions than CCBT sessions (Glover, et al., 2010). This dissertation found that guided self-help is preferred to CCBT, although it cannot compare their uptake figures. The popularity of guided self-help is not surprising, given that many Leads mentioned the emphasis during IAPT training on interventions other than CCBT. In a 54-page student manual used to train IAPT Psychological Wellbeing Practitioners (Richards & Whyte, 2008), the expression "computerised cognitive behavioural therapy" appeared only 3 times and CCBT was always mentioned very briefly as a treatment option without being discussed further. If treatment credibility of CCBT is low (or less than that of other options), this is likely to be reflected in how the intervention is presented to the patient, which in turn could increase attrition (Ritterband, Thorndike, Vasquez, & Saylor, 2010).

The CCBT literature says little about alternative interventions likely to affect completion rates. An exception is Eysenbach (2005), who lists "competing interventions" as one of 14 hypothetical factors influencing attrition in eHealth trials. Perhaps availability of more popular treatment options affects *FF* completion rates because, faced with any difficulty, CCBT patients can be readily given access to another intervention. A major role of PWPs is to help patients stick with treatment (Cavanagh, 2010), but not necessarily *one* treatment. Offering 'choice' is a key tenet of the IAPT ethos, and Leads often mentioned that in the interviews.

An alternative explanation is that the number of self-help books might be a proxy measure for other variables. Perhaps services with many such books might be more "traditional", less likely to experiment with new treatments like CCBT, and prefer to stick with more usual treatment-delivery methods.

A final observation is that some self-help books were much more popular than others. Some books were almost 7 times more available than others. Table 3-12 on p.106 lists books sorted by popularity and their order does not correlate with known disorders' prevalence rates, nor with the strength of their evidence base. Rather, they seem to cluster by "series". Anecdotally, in a recent visit to one IAPT team which had purchased *FF* licences for 30 patients, the service's waiting room had on display 4 bookshelves

filled with self-help books (many of which are noted in this study), and 2 of those bookshelves were entirely filled with just one of the 24 books listed in Table 3-12. Further enquiry might uncover why in certain teams some books are far more popular than others.

Screening and assessment

Length of assessment associated negatively with *FF* throughput and phone screening impaired clinical improvement of *FF* patients. In an uncontrolled study such as the present one, both factors might have been proxy measures for something else. Long assessment sessions are more likely to be done face-to-face and so may have made it easier for patients to establish rapport with the assessor. Many GPs refer patients to psychological services telling them "they will be talking to somebody". All these factors catalyse expectations which might influence patients' treatment preferences. Such patients, if offered *FF* after a face-to-face appointment, might feel "fobbed off", as some Supporters said.

Phone screening's association with poorer WSAS recovery rates might be explained by the lack of additional information not captured by standard IAPT measures. None of the questionnaires in the IAPT Minimum Data Set (MDS) screen specifically for CCBT and relying only on MDS cut-offs might not select the most suitable patients for CCBT. Face-to-face screening might help the gathering of further information which can better inform the screener about patients' suitability for CCBT. However, in this study most services screened patients by phone, and there are now validated web-based tools to screen for CCBT for depression (Donker, et al., 2010) and for general anxiety (Donker, et al., 2011), among others.

Past experience

It was no surprise that the teams of Leads who had a mainly managerial background used *FF* significantly more. More managerial Leads (as opposed to clinicians) seemed aware of *FF*'s cost-lowering implications and in general seemed more determined to ensure that *FF* was used. *FF* licences are paid up front, so not using them is like subscribing to a phone contract with lots of minutes and chatting for only a few minutes every now and then. Similar to the need for incentives to encourage the use of self-help

interventions among Norwegian clinical psychologists (Nordgreen & Havik, 2011), setting realistic and locally-agreed targets for the use of CCBT in NHS services might be worthwhile. It can help "making it happen" as opposed to "letting it happen" (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004, p.593), thus overcoming the initial resistance to change (Eccles, Grimshaw, Walker, Johnston, & Pitts, 2005) encountered when adopting many innovations. The NAs recommended setting simple and easy targets for Supporters (e.g. 'use *FF* with at least 2 patients each month') as one of their top 3 tips on how to successfully implement *FF* in the NHS. In many services, however, this suggestion was met with stiff resistance, feeling that it was not the NAs' job to set targets for NHS staff.

Supporters who had used CCBT in their previous post had lower *FF* throughput in their current post. This is counterintuitive. It could be expected that prior use of CCBT would have increased Supporters' confidence in this new treatment modality. However, evidence suggests the opposite, implying a possible disillusionment after initial adoption which made the workers more reluctant to try it again. Further research is needed to see if this was the case, and if yes, why.

Treatment preference

Workers who preferred pure self-help as a treatment modality were more likely to use *FF* with their patients. This is interesting, as *FF* has always been implemented in the NHS as a form of *guided* self-help. The *FF* training always insisted on the importance of supporting *FF* patients, as research has shown that added support raises completion rates (Newman, et al., 2003) and clinical improvement (Spek, et al., 2007). However, it seems as if workers perceived CCBT to be more a form of pure self-help than of guided self-help. This raises questions about how the workers see the task of supporting *FF* patients, possibly perceiving it as "not part of their sexy therapy role", as one Lead put it.

Blended use of CCBT

In keeping with the above finding, it is not surprising that using *FF* in combination with other treatments associated with an increase in throughput. Given that Supporters rated CCBT as the 4th preferred intervention (out of 6), it looks as if Supporters tried to

"normalise" *FF*, integrating it with more popular treatment methods such as face-to-face (1st preferred treatment and delivered by 63% of the participants) or using it together with self-help books. This is confirmed by the qualitative analysis of the barriers and boosters section of the Supporters' questionnaire. "Integrating *FF* with other treatments" was the 2nd most reported suggestion on how to boost *FF*'s use ("marketing" was the 1st). Some workers reported the need to "complement" *FF* so that areas not covered by the program (e.g. cognitive restructuring) could be addressed by other interventions.

Patients' suitability and perception of CCBT

Teams accepting referrals from probation services had lower completion rates than teams which did not accept such referrals. Though data on comorbidity for *FF* patients were not available, perhaps referrals from probation services were more complex than other referrals, and so less likely to be suitable for *FF* and to complete it.

Supporters who said their patients felt that using *FF* was using a 2nd class treatment had lower *FF* completion rates than did Supporters who did not report such patients' feelings. Though the statement is about patients, it was reported by the Supporters. It is difficult to disentangle how much it is a Supporter or a patient issue. As discussed above, when treatment credibility for CCBT is low among staff, this is likely to be reflected in how the intervention is presented to the patient. If staff's confidence in CCBT is low, patients might feel they are getting a 2nd class treatment, which leads them to disengage from *FF* and this in turn is fed back to staff.

Length of service

The number of months Leads had been in post associated negatively with clinical improvement of *FF* patients. As with Supporters who used CCBT in a previous post, this finding seems counterintuitive. One would expect more experience to yield better outcomes for patients. However, it may suggest that Leads newer to the post were investing more time and efforts in *FF* and this initially led to better outcomes for patients. It is possible that over a period of time, if the uptake of *FF* by patients wasn't as good as expected, the Lead might have considered alternatives to CCBT (e.g. books)

and by switching priorities in this way, the outcomes for *FF* patients were negatively affected.

Qualitative results

The qualitative data collected for this project confirmed some of the quantitative findings and illuminated additional areas not explored by the quantitative analysis. Results are discussed by referring to the Greenhalgh et al's (2005) model for the diffusion of innovations in health care organisations discussed on p.34. Diffusion of *FF* is operationalised by its usage (throughput), as very few Leads mentioned *FF*'s completion rates and none discussed its clinical outcomes.

Innovation

For Supporters, the relative advantage of using *FF* was minimal as they regarded other interventions as more appealing. They often had other treatment options available and in many cases chose treatments other than CCBT. In theory, *FF* is in line with IAPT indications for Step 2 treatment, but during IAPT training, CCBT in general was largely ignored. Most university training courses emphasised face-to-face interventions with the PWPs in training. In a very few teams it was possible to trial *FF* on a small scale and evaluate it before rolling it out across the entire organisation. The implementation of *FF* was mainly a top-down process, where commissioners purchased licences and expected the mental health team to use them. The potential to make changes to the program or the *PPMS* was therefore limited, and most workers had to work with the program without being able to adapt it to their specific needs. One possible way of interpreting the frequent use of CCBT with other treatments was that workers might have tried to 'reinvent' *FF*, as a way of repossessing their authority over it.

When Supporters were asked what they liked/didn't like about *FF*, they liked its being simple to use and easy for patients to access, although drop-outs from *FF* were reported as a major dislike. In general, *FF*'s clinical aspects (its effectiveness, structure and case studies) were liked by Supporters, while its technical aspects (e.g., the layout of *FF*, its inflexibility, and the patient-monitoring aspects) were not liked. These findings show

the need for *FF* to develop a more flexible structure, a more user-friendly *PPMS*, and new features improving adherence (e.g., automatic email feedback; Titov, Andrews, Choi, et al., 2009) in future releases of the program.

Adoption

FF's characteristics were not discussed extensively during the interviews (this aspect was specifically addressed by the open-ended questions from the Supporters' questionnaires – see p.167), but both Leads and NAs described at length how the adopters of the innovation (the workers) *perceived FF*. For many, *FF* was not helping their career to progress, as CCBT experience was not a requirement for more senior jobs, whereas face-to-face experience with patients was. As one Service Manager effectively summarised during a recent meeting "people will choose what is going to make them employable". The workers had low motivation to use *FF*, and they often preferred other interventions, mainly those involving face-to-face contact with patients. It was also reported that patients too seemed to like interventions where they could have "some human contact". It was a particularly strong factor as the Supporters and Patients were the 2 key decision-makers. The patients' preference for other interventions accord with previous reports (N. Mitchell & Gordon, 2007; Mohr, et al., 2010; Tarrier, et al., 2006).

Assimilation

A majority of the Leads emphasised how the implementation of *FF* did not follow a linear trajectory. It was a complex process, characterised by many as "stop-and-go". Sometimes, after an initial enthusiasm and associated burst of referrals for the program, problems emerged (e.g. workers had difficulties reaching patients for the weekly support calls) so initial excitement waned and usage of the program decreased. In other services, the opposite happened: after a relatively slow start, an external event (e.g. the commissioner putting pressure on the workers to use CCBT more) led to an increase of referrals. Another factor which contributed to the assimilation of *FF* was the release of a new version, which was preceded by a round of training and this helped build confidence in the workers, who were keen to try out the new program and explore its new functionalities. Finally, the presence of staff to deliver *FF* was a factor significantly

facilitating assimilation of the program by the team, while lack of staff to deliver it was conversely a factor which inhibited assimilation.

Communication and influence

The processes of influence were mainly vertical rather than horizontal. *FF* was purchased by commissioners and, from the top, his/her vision was passed down the hierarchy. There were no mentions of a spontaneous, horizontal spread mechanism where *FF* was the topic of discussions among the workers. In accord with previous reports (Whitten, et al., 2009), champions existed in many teams but were mainly on paper. In one team, for instance, the Lead assigned this role on purpose to a worker who was already underperforming in her job, as a way of varying her tasks in order to motivate her more. Not surprisingly, usage of *FF* was low while she was responsible for it. Engagement with *FF* by recognised opinion leaders was low. It was mentioned in the interviews that within IAPT training, influential professionals teaching course modules were not overly keen on CCBT, and this is likely to have contributed substantially to the workers developing unfavourable attitudes toward CCBT at the training stage. Change agents (the NAs) were external to the team and tried to increase workers' awareness and skills about CCBT, but this had limited success. In contrast, marketing (publicising) was discussed in almost every interview and was perceived as an important way of raising awareness of *FF* across settings and stakeholders (Supporters, GPs in the area, and patients). Books such as the *Overcoming* series have been marketed very successfully across the NHS and lessons could be learnt for CCBT about which channels to privilege to facilitate diffusion. Sometimes Leads pointed to the positive or negative effect of specific promotion materials/campaigns. At other times, marketing was mentioned as a *possible* way of raising the profile of *FF*, so caution is needed in interpreting the real impact of marketing. As the quantitative part of this research showed, visits to GPs did not raise throughput.

Inner context

(i): System antecedents for innovation

The characteristics of the teams before they implemented *FF* is an important issue captured in the interviews, as the questionnaires did not explore past history. Through the research it gradually emerged that there were services whose goals and priorities did not include implementing *FF*. In many IAPT services (especially at the start) the clear priority was getting the new IAPT model right. CCBT was perceived to be an innovation on top of another (more important) innovation and, for most teams, one revolution at a time was enough. The pre-existing knowledge base within most teams was also misaligned with CCBT. *FF* was perceived by many workers as being closer to a pure self-help intervention rather than as guided self-help. The human component of CCBT (the support given to patients) was probably regarded as more of an admin type ('remind them to login') than as truly clinical. This did not fit with their previous training and skills. A sizeable proportion of workers came from a non-CBT background, and many had previous experience of counselling or humanistic-oriented therapy, so clearly there was a mismatch between the previous skills set of team members and that required by CCBT.

(ii): System readiness for innovation

An important finding of this research is the divide between management (commissioner and, to a lesser extent, Leads) and Supporters. Commissioners of PCTs taking part in the research had chosen to purchase licences and the vast majority of them showed an understanding of the rationale for CCBT. However, the team implementing *FF* was often not yet ready to do so. In these settings there was a clear mismatch between *FF* and the organisation regarding their practice, culture and values which led to some teams discontinuing *FF*. In one service, this caused an open conflict between management and Supporters (p.149), the former pushing to use CCBT more and the latter firmly resisting (and ultimately winning the argument).

Outer context

This category was hardly mentioned by the interviewees. After the TA097 recommendation (NICE, 2006) and the implementation guidance issued the following year (DoH, 2007) no further guidelines on CCBT were issued and collaboration across PCTs in implementing *FF* seemed pretty scarce. Each PCT tended to operate like a monad – a basic, independent unit where what happened in other services about *FF* was largely ignored.

Implementation process

During implementation (but also within the first months after the *FF* service went live) it was perceived essential for the NAs to be working with hands-on professionals who were willing to be flexible in order to facilitate the assimilation of *FF* within the team. In many PCTs there was a high turnover of the Leads, either because they moved to a different role, or because the task of overseeing *FF* was assigned to somebody else. This was perceived as very disruptive by the NAs, as they could not carry out their routine duties. Another important thing which facilitated implementation was the presence of a dedicated worker, a member of staff not just championing *FF* as discussed above, but someone whose only job was to deliver CCBT to patients. Not many teams adopted this strategy, but those who did reported higher usage of and more satisfaction with *FF*.

Linkage

While NAs often talked about the importance of developing strong relationships with the Leads, only 1 Lead out of 19 explicitly mentioned the NA he was working with and talked about her as facilitating the assimilation of *FF* within his team. NAs were almost ignored by the Leads, and this is a clear indication of the value the Leads perceived in having a professional (external to the team and based in a commercial organisation) working with their staff. NAs acted based on short-term goals whereas Leads did not have such pressure. In the vast majority of cases, the Leads' role was to make a pluralist service successful, while the NAs' pressing concern was the increase usage of *FF*. As shown by the thematic analysis, NAs and Leads used different lingoes: business-oriented the former, more clinical the latter. NAs were not perceived as homophilous by

Leads and Supporters and this affected their credibility. Training sessions delivered by NAs seemed to be valued, but workshops were ignored and permission to visit local GPs was often not granted as it was feared that this could have lead to an unmanageable amount of referrals. No mentions were made of collaboration at the design stage of *FF*. When it was implemented, *FF* was already a finished product, so Leads (as was mentioned above with regard to Supporters) had little room in defining requirements and making changes to the package to suit their needs, such us deciding the order in which to prescribe *FF* steps to patients (the program does not allow this possibility).

An integrative view of the study's findings

This thesis demonstrates the feasibility of integrating quantitative and qualitative approaches within a single study investigating CCBT implementation. In this study, qualitative findings helped to explain the quantitative results, especially the negative ones (as is evident in the next section). Questionnaires captured quantitative aspects of CCBT implementation that were supposed to be 'knowable' and 'independent' of the researchers. The interviews, in contrast, provided the socio-cultural lenses to see those facts from the participants' point of view, and only by doing that the meaning of such facts can be fully understood.

Interaction between the components of the Greenhalgh et al's model

The conceptual model for the diffusion of innovations in health service organisations (shown on p.44 of this dissertation) emphasises the importance of the dynamic relationships among its different components. The various areas of the model are not meant to be studied as isolated categories. A more nuanced approach is needed to explore relationships among the dimensions and changes within them.

In the present study, a major issue was the lack of linkage between the resource system (the 'seller' of the innovation) and the user system (the adopting organisation) at the design stage. The original prototype of *FF* was developed at the Maudsley hospital long before it was implemented in routine care across England. Most of the research done on *FF* took place in a Self-Help Stress clinic (Gega, Marks, & Mataix-Cols, 2004) which

was a very different setting from the services which took part in the present study (it was a CCBT-only service and its staff were highly-skilled in delivering CCBT). As discussed on p.185, current services delivering *FF* did not have a chance to be involved in specifying their requirements for the program. This was an important initial obstacle.

In addition, *FF* lacked engagement with knowledge purveyors, i.e. professionals who were independent of the resource and user systems and acted as intermediaries to facilitate the dissemination of the program. Most notably, *FF* was not officially endorsed by the leading clinicians/researchers who influenced and were actively involved in the IAPT programme and its training. In some cases opinion leaders were sceptical of any CCBT, while others were more likely to be ambassadors for different CCBT interventions which they had helped to develop. Dissemination activities for *FF* (active communication with selected audiences – e.g. at conferences) were thus limited.

Similarly, diffusion mechanisms (passive processes requiring no active efforts) were slow. As shown through the thematic analysis, most Supporters were not enthusiastic about *FF*. In most PCTs, there was no CCBT 'narrative' among staff and this clearly did not facilitate adoption. A telling anecdote can clarify this point. During a *FF* training session delivered in an IAPT service in June 2011, the PI arrived as usual before the session to set up the necessary equipment for training (laptop, projector, etc..). PWPs gradually entered the room and, while waiting for the training to start, their small talk did not revolve at all around the topic of the presentation. Most of the workers in that team had just applied to the Doctorate in Clinical Psychology, and they were discussing in an animated way their respective ranked positions on the provisional admittance lists, and how they could best gain admission to the course. *FF* was very low down on their priorities at that time.

With little dissemination or diffusion activities, most of the emphasis to facilitate the adoption of *FF* was put on the implementation process. A series of antecedents (mainly, previous IAPT training and the skills base of current staff) predisposed many future *FF*-adopting organisations against CCBT implementation. When *FF* was actually implemented, few services were ready for it. They had other priorities (i.e. getting up to speed with IAPT) and many teams had a wide range of treatment options available to patients which were more in line with their workers' previous training and experience than with *FF*.

The last aspect of the model which permeates all categories is the outer context. What happens outside the user/resource system can influence the adoption of an innovation. The previous section reported that the outer context was hardly mentioned by interviewees. NAs and Leads rarely discussed external input that facilitated the adoption of *FF*. This represented significant 'absences' in the interviews. However, an alternative perspective would be to focus on external events which *impeded* adoption of *FF*. The advent of the IAPT programme had been a seismic event which radically changed the provision of primary care mental health in the UK. Where fragmented services had existed in the past (each giving care in a different way), IAPT introduced a common organisational structure and clearly-specified training programmes for staff. It was a revolution for the provision of psychological treatment to sufferers from common mental health problems in the UK. As the thematic analysis showed, IAPT training was not geared toward CCBT. Thus, in terms of the diffusion of innovations model, the outer context can be conceptualised as creating adverse system antecedents - a shaky ground on which to implement *FF*.

A critique that can be made of the Greenhalgh et al (2005) model is that it did not account for competing interventions, i.e. alternatives directly competing for resources (time and money) with the innovation being studied. 'Alternative interventions' was the pivotal theme of the thematic analysis in the present study. Most other themes revolved around it. Some individual factors within Greenhalgh et al's (2005) model can be linked to/are influenced by this theme (e.g. "perceived relative advantage" or "dedicated time/resources"), but none of the main dimensions adequately captures the importance that interventions other than CCBT (face-to-face therapy, guided self-help, psycho-educational groups) had on the implementation of *FF*.

A final point worth discussing is how some dimensions changed over time. The resource system and the innovation remained rather stable during the time period investigated in this study. *FF* received only a minor, cosmetic update and its implementation procedures did not change. However, the settings in which *FF* was implemented changed, at times dramatically. As discussed in the case study of the PCT which successfully implemented *FF* (p.159), referrals shot up to 1,000 a month when the service became IAPT, compared to only 40 referrals a month in the pre-IAPT period. Other factors changed too. For instance, 'system readiness for innovation' varied over time, with some teams using few *FF* licences during the first implementation (thus discontinuing it) but resuming usage a few years later with an

increased number of licences when external pressures (higher number of referrals) made them seek more cost-effective interventions.

Discussion of null findings

As reported on p.171, the 5 hypotheses of this study were not confirmed, but several significant associations emerged from the exploratory part of the research. Not every factor included in the exploratory analyses was expected to be significantly associated with each outcome measure (throughput, completion rates, and clinical improvement). However, the fact that all hypotheses and many exploratory variables failed to reach significance is a notable event which needs to be fully discussed.

First, as will be discussed more extensively on p. 194, the survey instrument had a number of limitations with regard to validity and reliability which could have influenced how many factors achieved significance.

Second, the settings investigated in this dissertation were complex and dynamic. They were fluctuating substantially over time with regard to important characteristics. For example, the number of referrals varied considerably not only *between* but also *within* services. When a new IAPT service went live often there was a peak of referrals, in many cases due to the accruing of waiting lists by GPs. Some services took months to eliminate or (at least) reduce this backlog. Another example of how services changed considerably was with regard to their staffing levels. Many IAPT services opened their door with few qualified staff. Most of the Step 2 workers had been in training for a year before they could finally operate as qualified PWPs. When submitting the questionnaire, it is possible that some of the workers were still in training, while others were not any longer, and this could have influenced the type of task they were assigned to, as reported by the Lead 22 on p.144. The survey instrument was a cross-sectional questionnaire which could not capture the evolution of services and people over time. It took a snapshot of the situation under study at a specific moment in time. The ideal team to be studied through such questionnaires would have been a static team where no changes happened and important organisational variables remained constant. Needless to say, such teams do not exist in reality. Moreover, questionnaires focused mainly on factors that previous *FF* research had emphasised as important, but these factors had

often been obtained from RCTs and might not necessarily apply in the routine care settings investigated in the current study.

Another factor to consider is whether the study was sufficiently powered to detect differences where they existed (probability of not committing a Type II error). *A priori* power calculations were not conducted due to the lack of similar effects reported in the literature (no previous study was found addressing the same hypotheses). Although *post hoc* power calculations are technically possible through programs like G*Power, many authors have strongly argued against this practice (Zumbo & Humbley, 1998). One cannot use *a posteriori* power to determine whether a non-significant effect is due to lack of effect or lack of power. The argument is circular: if power is lacking, the correlation coefficient would not closely reflect the true strength of the relationship between variables and therefore could not be the basis for a precise power calculation. Although not in itself a hypothesis, training was significantly associated with throughput (p.172), so perhaps the present study might have been sufficiently powered to test hypotheses 1, 2 and 3. Hypothesis 4 was tested with a sample of 60 Supporters and Hypothesis 5 had a sample size of 331 patients, making it unlikely that lack of power was the reason for negative results with those.

In sum, the survey instrument had a number of limitations, settings were complex and highly-changing, and lack of statistical power is unlikely to have been an issue. In addition to such considerations, can the qualitative part of the research help explain the negative quantitative results? As evidenced by the qualitative part of this dissertation, other variables appeared as more important within the routine settings which were investigated. For instance, Supporters and their preferences were fundamental. The questionnaire they filled out focused predominantly on *how they used FF* rather than on *their attitudes and feelings* about it. Similarly, the Supporters' questionnaire asked how workers normally supported patients, and the most common answer was "phone". It didn't ask whether they preferred it. Thematic analysis revealed that although the majority of workers do use the phone to support CCBT patients, most of them prefer supporting patients face to face, as this helps the building of a therapeutic alliance and offers the possibility to answer patients' queries, whether these are technical or clinical. Qualitative analysis gives a deeper insight into the workers' perspective and motivations, and helps explain why *FF* was not a favoured intervention. The Supporters' questionnaire asked whether workers liked *FF*. Besides considerations about desirability issues in answering the questionnaire (given that the PI had met many

of the workers in his non-academic duties), it could be that liking *FF* does not mean preferring it to other interventions, as qualitative data have shown. Judged on its own, *FF* received a satisfactory rating, but when compared to other options *FF* was not perceived as the most favoured treatment. In fact, the ranking of preferences listed CCBT as the one before the least- preferred option, while face-to-face ranked first. The qualitative analysis also helped explain negative quantitative findings which seemed rather counter-intuitive. It seemed plausible to expect that an IAPT service receiving 1,000 referrals per month would use *FF* more than a third-sector organisation receiving 40 referrals a month. The quantitative analysis showed that this was not the case. The equation "more referrals into the service = more *FF* throughput" without taking into account alternative interventions and workers' preference toward such interventions is a simplistic assumption.

Benchmarking of *FF* outcome data

FF outcome data (throughput, completion rates, and clinical improvement) from this study are compared to naturalistic studies of *FF* delivered in an NHS Self-Help Stress clinic (Gega, 2009; Kenwright, et al., 2001; Kenwright, et al., 2004; Marks, et al., 2003) and to RCTs investigating stand-alone *FF* (Marks, et al., 2004) and internet-delivered *FF* (Schneider, et al., 2005). The Self-Help clinic offered 4 CCBT programs (*FF* for panic/phobia, *Cope* for depression, *BTSteps* for OCD and *Balance* for general anxiety), but no other interventions (e.g., self-help books, psycho-educational groups).

Throughput

During its 12 months of operation, the Self-Help Stress clinic had 355 referrals for several clinical problems. Of those, 43 patients (a mean of 3.6 patients/month) started *FF* (Gega, 2009, p.78). The teams examined in this dissertation reported a median of 2,160 referrals/year (about 6 times the referrals of the Self-Help Stress clinic) but the mean number of patients starting *FF* each month was 3.8, remarkably similar to that of the clinic.

Completion rates

Unlike other CCBT programs which showed increasing attrition over time (Bennett, Harris, & Learmonth, 2006; Eysenbach, 2005), *FF*'s attrition curve follows a U-quadratic distribution (Table 3-1 on p.96). In the present study, completion rates were 34% when defined as 'reached at least Step 7' (see p.91). The afore-mentioned *FF* studies adopted a more conservative definition ('reached Step 8'); adopting this definition, the current study yields completion rates of only 24%. In RCTs, stand-alone *FF* achieved 56% completion rates (Marks, et al., 2004) while internet-delivered *FF* attained 76% completion rates (Schneider, et al., 2005). An uncontrolled study by Kenwright et al. (2001) had 59% completion. Thus completion rates for *FF* in the present study are half to one-third of those reported previously.

Clinical improvement

In the present study, as in other reports (Marks & Cavanagh, 2009), trigger/goal ratings improved more quickly than did WSAS scores, though this may reflect the Triggers and Goals post-ratings having been collected only at Step 8, whereas WSAS post-ratings were available as soon as 3 weeks after the patient completed Step 1 (analyses of Triggers and Goals are essentially for completers only). Uncontrolled effect sizes (ES) in this study were 0.3 for WSAS total, 2.2 for Trigger and 1.8 for Goal. When tested in a RCT, stand-alone *FF* yielded a 0.7 ES for WSAS total, 4.3 for Trigger and 3.8 for Goal (Marks, et al., 2004). Internet-delivered *FF* in an RCT resulted in a 0.9 ES for WSAS total, and 2.4 for both Trigger and Goal (Schneider, et al., 2005). Based on the WSAS total, 23% of present patients recovered (i.e., improved more than 50% from first to last available rating). Previous *FF* studies did not report recovery rates. Recently IAPT teams reported 48.6% recovery rates in phobic patients, regardless of whether they received high- or low-intensity interventions (Gyani, et al., 2011), but caution is needed in comparing this with the present results as Gyani et al calculated recovery from PHQ-9 and GAD-7 scores.

Strengths of the present study

This may be the first investigation of a national implementation of CCBT in routine primary care. The present study is not restricted to a single level of analysis, but takes

into account 3 hierarchical levels, i.e. micro (individual Supporter), meso (Service Provider) and macro (PCT). Because of its sample size (30 PCTs – almost half the English PCTs which purchased licences for *FF*), this study has potentially high external validity. The results of this investigation could be generalised to other nation-wide services abroad where CCBT is delivered in a similar fashion, i.e. as one among several treatment options, often blended with other interventions, and supported by junior professionals who see their current role as temporary before moving forward in their career path to more senior and better-paid jobs.

The present study's design offers a further advantage. In previous qualitative research on CCBT adherence and effectiveness, taking part in a research study motivated users to complete treatment (Gerhards, et al., 2011). In contrast, *FF* implementation in the NHS took place before the current research began. The patients using *FF* on the NHS who provided the anonymised data for the present study were not enrolled as part of a research project. The questionnaires given to Supporters and Leads between 22nd February 2010 and 4th November 2010 asked about past/current practices. It seems unlikely that participation in this study led them to change their practice and thus influence patients' outcome, as no feedback was given to participants during data collection and patients' data were extracted on 15th October 2010. Though the PI had little control over the variables studied, his study offers a realistic picture of dynamics influencing the implementation of CCBT in the NHS, greatly limiting the chances of a Hawthorne effect occurring and increasing the chances for this research to be ecologically-valid (representing real-world conditions).

A final strength of the current study is the experience gathered by the PI before the research began. The PI's involvement with most of the research participants before the research started raises obvious concerns which are addressed in the next paragraph. However, this previous involvement was a clear advantage when conducting the interviews, as the interviewer was already familiar with the situations he was about to investigate. The vast majority of the interviews were very rich. Only a few could be considered of little relevance. The PI's had to learn less when doing interviews than would have been essential had he not been involved in the company.

Limitations of the present study

This study has several limitations.

1. It collected quantitative data from participants through self-report questionnaires and, given that no previous studies used surveys covering every area examined in this project, new questionnaires had to be custom-created without a chance to establish their validity and reliability.
2. The sampling frame for this study had limitations which are discussed below.
3. Only 36% of the Supporters initially contacted could be included in the final database, thus potentially introducing response bias.
4. The dual role of the Principal Investigator raises obvious issues about the chance of an observer bias which might have influenced the results.
5. Considerations about additional measures which could have been collected and the impracticability of including CCBT programs other than *FF* are discussed.

Threats to internal validity

Validity of measures used in the questionnaires

Of the 7 stages recommended by Prince and colleagues (2003) for the development of a new measure (discussed on p.69), only the first 4 steps were followed. The new set of measures was developed by the PI and the second supervisor (IM), who has extensive experience in CCBT research. Constructs of interest were identified from important areas from the CCBT literature as well as factors listed by Greenhalgh et al., (2005) and by Fixsen et al., (2005; e.g. coaching). Through a series of discussions, a final list of areas deserving inclusion in the questionnaire was drawn. Preliminary items were drafted by the PI and reviewed several times by both the PI and IM.

Alpha and beta testing were not performed. As discussed on p.70, Prince et al. (2003) recommends a sample of 50 to 100 participants for alpha testing, and such a requirement was well beyond the resources available for the present study. The participants who returned a completed questionnaire were 6 Nurse Advisors, 37 Leads and 171 Supporters. Even requiring just 50 participants for alpha testing would have meant that the questionnaire could have only been validated for Supporters.

Issues around the validity of some measures included in the Leads' questionnaire emerged during the interviews. The first part of the discussion was spent revising the quantitative answers, as in some cases the answers were clearly contradictory or unrealistic. As an example, while most Leads correctly reported patients' diagnoses across the whole service, a few Leads reported diagnoses of patients accessing Step 3 only. One Lead reported diagnoses just for *FF* patients. It is possible that questions in the questionnaire were not phrased clearly enough. Having the chance to correct the quantitative answers during the interview increased the accuracy of the responses given, but perhaps other misunderstandings and errors went unnoticed which might have affected the validity of the answers given.

Another aspect influencing the validity of the measures was that most variables (e.g., mean number of referrals per month) were reported by participants and cannot be checked against other measures. This might explain why several variables included in the current study were not significant. For example, the Supporters' questionnaire asked how *FF* patients were *generally* supported. It was impossible to quantify actual support variables for each individual *FF* patient. The *PPMS* was built to collect some of these measures, but competing priorities (Supporters had to use the Service's Patient Management Systems anyway – usually PC-MIS or IAPTus) led to very few workers using the *PPMS* to record these data.

Reliability of measures used in the questionnaire

The reliability of questionnaire items was not tested through standard procedures such as test-retest reliability, due to participants' constraints in the time available. In busy NHS settings, very few teams (if any) would have agreed to answer the same questionnaire on 2 different occasions. Leads and NAs, in particular, participated without any compensation (Supporters who returned a completed questionnaire entered a raffle), and it is highly unlikely that they would have agreed to participate twice.

Spilt-half reliability checks conducted after data collection showed that 6 items in the Supporter's questionnaire and 10 items in the Lead's questionnaire exhibited non-random variations between the 2 randomly-selected subgroups for each item. This indicated potential reliability problems with approximately 10% of the items for the Supporters and Leads questionnaires. Analyses on the NAs questionnaire did not highlight similar problems.

Biases

Selection bias

Selection bias did not occur with NAs (all 6 took part in the research). All the 88 teams which implemented *FF* across England were contacted, so none were excluded *a priori*. When a Lead of a team consented to take part, all the Supporters within his/her team responsible for using CCBT with patients were contacted, thus removing the chance of a selection bias occurring among Supporters. However, other professionals within the PCT (e.g. commissioners) had an important role regarding *FF* implementation but could not be included in the research due to constraints in available research resources. Similarly, a sample of *FF* patients could have been included who might well have provided important insights, given that they were the ultimate beneficiaries of the innovation under investigation. Again, limited resources meant that this issue too could not be examined.

Might the above exclusions (under-representation of negative viewpoints) have influenced the results of this study? NAs portrayed commissioners as being among the most supportive professionals within the PCT in terms of *FF* implementation. It is unlikely that commissioners would have mentioned significant barriers which had not already been discussed by Leads or explored other issues related to the key role of the Supporters and patients, as commissioners were not directly in touch with them.

In contrast, including patients in the research might have contributed to further exploration of their treatment preference, which was identified in the thematic analysis as an important sub-theme. Having a chance to explore first-hand accounts from patients rather than second-hand reports from the Leads would have added significantly to this study.

Response bias

Thirty seven of the 88 teams which had implemented *FF* took part in the research (42%), as 304 out of 546 Supporters registered on the *PPMS* did (55%). Only patient's data for participating Leads and Supporters were processed, so it is not possible to assess whether Leads and Supporters who agreed to participate differed substantially on measures such as *FF* throughput, completion rates and clinical improvement from those who didn't. No personal details like age or gender were collected for Leads or

Supporters registered on the *PPMS*. However, CCBT Ltd provided reports for *FF* throughput, completion rates and clinical improvement at the PCT level, so it is possible to assess whether participating PCTs differed from non-participating PCTs. Participating PCTs did not differ from non-participating PCTs either on *FF* throughput (U=-1.16, N=58, p=.25), completion rates (U=0.89, N=52, p=.77) or WSAS clinical improvement (U=1.54, N=26, p=.12)[28].

Response bias can also occur after participants have agreed to participate if those completing differ from those who don't (this is also called attrition bias). All 6 NAs and 37 Leads returned their questionnaire. All 6 NAs were interviewed, while only 19 interviews from the Leads (51%) were included in the analysis (for reasons why some interviews were excluded, see p.96). Leads whose interviews were included did not differ from Leads who either did not consent to be interviewed or whose interviews had to be excluded, either on *FF* throughput (U=-1.56, N=37, p=.12), completion rates (U=.19, N=30, p=.85) or WSAS clinical improvement (U=.74, N=16, p=.46).

Among Supporters, 171 out of 304 returned a completed questionnaire (56%). For this participant group it is not possible to assess attrition bias as the list of workers to be emailed a questionnaire was prepared by the Lead based on current staff availability and not on the basis on the workers registered on the *PPMS*, so often mismatches happened and this represent an important limitation of the study.

Another possible source of bias was the further reduction of available data from Supporters. Only 110 of the 171 workers who returned a completed questionnaire could be tracked on the *PPMS* and linked unequivocally to particular *FF* patients. There are several reasons for this. The first version of the *PPMS* did not allow Supporters to log in using an individual user account (there was just 1 single username and password for the whole team), so the actions of individual Supporters could not be tracked. Exceptionally, when a team consisted of 1 Supporter only, it was assumed that all patients were supported by that Supporter and were assigned to him/her. When the team had more than 1 member, it was impossible to assign individual patients to specific

[28] For completion rates and clinical improvement, PCTs with data available for less than 10 patients were excluded.

Supporters. The new *PPMS* was introduced in the first semester of 2008 and from that moment each Supporter had an individual account, which made tracking easier. However, (though discouraged from doing so) some Supporters shared the same login details with the team and so had to be excluded even if it was not always possible to identify such occurrences with certainty. Like the workers who did not return a questionnaire, no additional data from these workers are available other than their email address, so one cannot assess whether a bias might have been introduced at this stage. One way of assessing whether differences existed between Supporters who responded and those who didn't is to check whether there is a significant correlation between percentage of non-respondent Supporters per team and *FF* throughput in that team. It might be speculated that teams who used *FF* less had a higher percentage of Supporters who did not respond; but the Spearman correlation is non-significant (ρ=-.18, N=37, p=.27)

Observer bias

As discussed on p.14, the PI's role within the company marketing *FF* helped him to plan and execute the current study. However, it was also an important limitation. The PI knew personally several Supporters, most of the Leads and all the NAs as part of his non-academic duties. Such pre-existing relationships might have introduced a social-desirability bias from participants, perhaps "softening" their answers by failing to report negative evidence or by taking part to avoid affecting their rapport with the PI. The 100% return rate on questionnaires from consenting Leads and NAs might indicate that, although many Leads saw this research as a way to better understand factors influencing the use of CCBT within their own service.

Observer bias can also be introduced by "data massaging". The procedures for data analysis were specified in advance and no data were discarded without a strong reason for doing so. For instance, when calculating factors influencing completion rates and clinical improvement, some Supporters and Leads had to be excluded because they had so few patients that their inclusion would have significantly skewed the data (e.g. if a Supporter only had 2 *FF* patients linked to his/her profile and 1 had reached the end of the program, it would have looked as if 50% of his/her *FF* patients had completed treatment).

With regard to qualitative data, the PI was not blind while analysing the interviews and this could have introduced observer bias. Recruitment of another independent coder was not possible due to limited resources and the PI gave numerous quotes when reporting the qualitative results in order to make the coding as transparent as possible. Drawing very firm conclusions from the qualitative analysis would ideally require independent coding of interviews by another researcher and the calculation of inter-rater reliability coefficients (Cohen's kappa).

Data collected

Due to the Leads' time constraints, lack of monetary compensation for their participation, and high number of research sites, no patient measures could be obtained beyond those available in the *PPMS*. Fidelity of implementation, for example, could not be measured (Keith, Hopp, Subramanian, Wiitala, & Lowery, 2010), so it cannot be ruled out that training sessions, workshops, and surgery visits (as well as planning meetings) might have varied a lot in their quality. Further data about patients' demographics, treatment preferences and satisfaction would have been valuable to collect had there been more time and resources. At the Service Provider level, some data were particularly difficult to gather (e.g. patients' diagnoses – see footnote 7 on p.81) and had to be excluded from the analysis.

Focus on *FF* only

This study focused on *FF* only as it was impossible to gather individual outcome data for patients using other CCBT packages such as Beating the Blues^{TM}, Living Live to the Full, and MoodGym. National dissemination issues with other CCBT packages deserve exploration where this is feasible.

Conclusions and reflections

This may be the first investigation of a national implementation of CCBT in routine primary care. The present study makes an empirical contribution to the CCBT literature and confirms previous findings that the implementation of complex interventions in organisations does not follow simple predictive rules. CCBT is not a "plug-in" technology. Like any technology-based innovation, its successful implementation depends on the interplay between technical and social factors. Particular attention should be paid to how CCBT fits with existing interventions and to the background and attitudes of staff delivering it. This thesis extends to junior mental health professionals previous findings about perceptions of CCBT by more senior mental health professionals (Audin, et al, 2003; Whitfield & Williams, 2004; Nordgreen & Havik, 2011; Gun, Titov, & Andrews, 2011).

Implications of this study

For researchers

The present study's results suggest the need for CCBT researchers to think carefully about the effects of large-scale implementations on the usage and clinical outcomes of the programs they have developed, and how to measure those. Lessons learnt should be incorporated by making changes to the original intervention or by adopting a different implementation strategy. One should always keep potential pro-innovation bias in mind. Benefits which are self-evident to the creator of an innovation might be less obvious to the implementers of that innovation.

The findings of this dissertation could guide the development of future CCBTs regarding features which might facilitate their implementation in routine health care settings. Individually-tailored interventions have received increasing attention in recent years (Johansson, et al., 2012; Silfvernagel, et al., 2012). The present thesis supports this trend, especially where the CCBT is delivered by qualified staff who are more likely to use it 'blended' with other interventions rather than on its own. Individually-tailored interventions allow the clinician to prescribe only relevant modules to the patient, thus customising treatment for each individual; they also give clinicians a more active role, whereas the input required by current CCBT packages is perceived to be more administrative as opposed to clinical.

Another research stream which will probably become more important in coming years is that of IT-augmented CBT (Månsson, Carlbring, & Andersson, 2012). In this area technology is seen as a support rather than a replacement for standard face-to-face CBT. Here, the technology does not save clinician's time, but rather allows the boundaries of CBT to be pushed forward, allowing clinicians to tackle problems in innovative ways which are not viable within traditional face-to-face CBT (e.g. real-time monitoring). Using technology in this way might overcome many of the clinicians' resistances documented in the current study, as the therapist firmly remains at the centre of the therapeutic process and technology is not perceived as interfering with the establishment of a therapeutic alliance.

A contrasting approach is that of fully-automated CCBT (Helgadottir, et al., 2009; Espie, et al., 2012). The advantage of these programs is that they require no human support, which could facilitate diffusion. Given the difficulties reported in the present study about engaging Supporters in CCBT, avoiding the need for support altogether might be advantageous. Fully-automated interventions rely on sophisticated algorithms which can adapt to a wide range of clinical presentations. A further advance on this front is the use of machine-learning approaches (i.e. 'intelligent real-time therapy'; Kelly, et al., 2012), where computers are not simply pre-programmed with static scripts but the machines can actually *learn* new behaviours to cope with an almost endless array of situations. Such systems can be programmed to dynamically tackle the specific psychological mechanisms responsible for the development and maintenance of complex mental disorders, rather than deliver a standardised treatment protocol for an entire diagnostic group. It is a close approach to applying artificial intelligence to CBT.

Critics of fully-automated interventions argue that no therapeutic relationship can be established. The importance of a therapeutic alliance for success in therapy is a strongly-held belief among clinicians, although there is evidence that the *nature of the patient's participation* in therapy might be a stronger predictor of outcome than the therapeutic alliance per se (Westbrook et al, 2011). The new generation of CCBTs should aim to "weave themselves into the fabric of everyday life until they are indistinguishable from it" (Weiser, 1991, p.78). 'Ubiquitous therapy' can potentially be highly-relevant and engaging to patients. Such interventions might require less or no support time, thus facilitating diffusion in settings where the clinician's time per patient is reduced to a minimum (e.g. in a GP consultation). Fully-automated interventions have had promising results in controlled trials but, as this dissertation has pointed out,

whether their benefits would be maintained when implemented in routine care is another matter. Future research might tell whether fully-automated interventions can live up to their promise.

For managers in the NHS

One of the most important findings of the present study is that Leads with a mainly-managerial past experience used *FF* significantly more than Leads with a mainly-clinical past experience. Should the implementation of *FF* simply be handed over to managers to guarantee its success? The answer is obviously no. Although managers facilitated the use of the program by workers, they had no influence on patients' completion rates and clinical improvement. This finding highlights the importance of managers and clinicians working together when an innovation like *FF* is implemented in an organisation. Perhaps the introduction of policies such as Payment by Results (DoH, 2010) might put pressure on managers to get CCBT accessed more widely. However, unless the clinicians are fully on board, it is unlikely that an intervention like *FF* will be sustained in the long run. Adoption does not guarantee sustainability.

The current study also found that interventions other than *FF* were chosen more often based on patients' and supporters' preference, not on outcomes. Some Leads stressed that their team offered a wide range of options, but paid less attention to data about the effectiveness of each option. Services need to conduct and share the results of careful evaluations of the effectiveness of different interventions available within their team, in order to better inform treatment choice.

Resistance to the use of CCBT was widespread among Supporters taking part in this research. Managers could recruit and train dedicated workers ('CCBT specialists') whose main task is the delivery of computer-aided interventions to patients. This would build on existing organisational structures (IAPT) but at the same time allow more specialisation likely to yield better expertise around CCBT and to increase motivation. The background of CCBT specialists should be more clinically-oriented where interventions require substantial clinical judgement (the individually-tailored programs or 'blended' interventions discussed in the previous paragraph), whereas admin personnel might be more suitable to deliver interventions requiring minimal support. There is no perfect way of organising the mental health clinics of the 21st century (Marks, 2009) but diversifying the workforce might be a strategy worth pursuing.

For clinicians in the NHS

Since the first studies appeared in the literature, *FF* has always been presented as a "clinician extender", rather than a "clinician replacer" (Marks, et al., 2003). The present study found that most clinicians didn't perceive it in that way. Although Luddite statements were rare, many Supporters had a palpable concern that CCBT might impact on their job, whether at present or in the future. In a recent meeting at an IAPT site, it emerged that over 2/3 of PWPs had not used *FF* with a single patient over more than a year. Will technology be the villain to blame for the fear of job losses, as more machines are replacing humans for a wide range of tasks, including driving cars (Brynjolfsson & McAfee, 2011)? This thesis can't answer that question. However, many clinicians may be asked to work *differently* in the future. The discontent Step 2 workers reported with their role (irrespective of *FF*) indicates an uneasiness to work within the new low-intensity paradigm for mental health care (Bennett-Levy, et al., 2010). Most PWPs want to move quickly to clinical psychology training or high-intensity work – 'the real thing', as one Supporter called it. If it is true that CBT "now largely resides within the materials, rather than within the therapist" (*ibid.*, p.13), it is essential for training bodies and associations (like the BABCP) to help workers adapt to this situation. To date, there is still no special interest group within the BABCP or the British Psychological Society (BPS) which focuses on the application of technology to psychological therapies (in the US, the American Psychological Association are currently considering the creation of a Society for Technology & Psychology). Addressing career progression and training issues might yield a more favourable attitude in PWPs toward Step 2 work. At the moment, CCBT is more a barrier than a booster for the career of many junior professionals, as it takes away the face-to-face experience which is seen as necessary to move forward. Attention should also be paid to the recruiting process to ensure that successful applicants are aware of the nature and rationale of low-intensity interventions.

Not all clinicians are against CCBT. Many workers used *FF* with patients on a regular basis. What is important for the future is to involve those who are interested in CCBT with the development and dissemination of computer-aided CBT programs. In some sites, *FF* seemed to suffer the "not-invented-here" syndrome. An NHS-branded CCBT intervention developed by NHS clinicians might give professionals a sense of ownership of the program. Many self-help books are proudly named after the locality where they were developed (e.g. the Oxford Cognitive Therapy Centre booklets, the

Northumberland series). There is no reason why the same logic cannot be applied to CCBT programs.

For industry

In a field like CCBT, successful ventures require collaboration among different stakeholders, each bringing to the table different skills and expertise. Businesses can play an important role in driving technical innovation and in guaranteeing that software meets the most stringent security requirements. Technological aspects are still considered by many patients and workers as major barriers. If the first login to *FF* does not proceed smoothly, this can affect the users' motivation and make them less likely to continue. Reliable software with a focus on usability and first-class customer support (being able respond promptly to technical issues raised by either patients or clinicians supporting those patients) are essential ingredients for a CCBT business to thrive.

In the early days of CCBT, researchers with programming skills often developed their own software, which in some cases went on to be successfully tested in randomised controlled trials. However, by today's standards the look-and-feel of those programs is quite rudimentary. When bringing a product to market it is essential that its look-and-feel is up to date, as this can have a significant effect on the chances of adoption. In one PCT in England, the use of *FF* quadrupled when a multimedia version of the program was released in 2011. The first version used by many patients in this study was developed over a decade ago. Ten years in the IT industry is like a century in many other businesses, in terms of aesthetics and functionalities.

Future CCBT will also need to embrace mobile devices. In the recent Oxford Internet Survey, 44% of current internet users in the UK are considered Next Generation Users (i.e., accessing the web through multiple mobile devices; Dutton & Blank, 2011). Using mobiles would allow the collection of new kinds of data (e.g., geo-location information) which current mainstream CCBT can't gather. Future CCBT programs could sense and react in real time based on ecological data (Burns, et al., 2011) and this can open up interesting possibilities from a research and clinical point of view.

While it is important that the look-and-feel of a CCBT intervention is up to date, its significance should not be overemphasised. This thesis shows that having the clinicians on board is far more important than a good-looking product. The best technological

solutions should ideally power a CCBT program which has a solid evidence base and has already gained acceptance within the community of clinicians. Like clinical researchers developing their own software might not be the best option, it is equally important that businesses resist the temptation to 'go solo', convinced of the superiority of their technological solutions. The Silicon Valley hubris does not pay off in healthcare. Search giant Google has an estimated worldwide reach of 1 billion unique visitors per month but Google Health (its personal health record service) has been discontinued because "we haven't found a way to translate [early] limited usage into widespread adoption in the daily health routines of millions of people" (googleblog.blogspot.co.uk/2011/06/update-on-google-health-and-google.html). As well as needing strong collaboration with well-respected researchers and clinicians, businesses should make sure patients are actively involved in the design of CCBT interventions, since they are the ultimate beneficiaries (van Gemert-Pijnen, et al., 2011). In telehealth, it is important to design technology *with* people, not *for* people. What a programmer might think is a very cool feature (e.g. a 3D model of a spider shown in the introductory video of the program), for a phobic patient it could be the last nail in the coffin in deciding to stop using that intervention. It is hoped that future CCBT programs will be developed by businesses which are people- (rather than technology-) focused.

For patients

The findings from this dissertation accord with previous literature (Tarrier, et al., 2006; N. Mitchell & Gordon, 2007; Mohr et al., 2010), pointing out that a majority of patients prefer face-to-face interventions. CCBT might well be a treatment for a minority of patients. As well as recommending a more active role in the development process, better engagement from patients might be achieved by clearly communicating the *specific advantages* of online therapy over face-to-face. The common assumption held by many clinicians is that 1-to-1 face-to-face therapy is the gold standard against which to compare other treatments and this view is often implicitly passed on to patients. Rather than seeking to emulate face-to-face therapy, next generation CCBTs should try to harness the potential of computers to deliver an *enhanced* form of psychological therapy which, although based on established therapeutic principles, does not just mirror the status quo. For example, an innovative CCBT intervention could easily use a smartphone app to plot a 'thermal map' showing the localities where the patient has been in the last 30 days and the associated mood ratings. Data collection would be semi-

automatic (location is automatically logged and mood ratings can be programmed to be triggered at random intervals) and it will likely result in greater accuracy and data completeness.

An alternative treatment delivery method which is receiving increasing attention (in particular due to the surge in the adoption of smartphones) is direct access to CCBT apps by patients. While it is true that this represents an important additional channel for delivery, one must be reminded that 'not all apps are created equal'. Breton and colleagues (2011) reviewed the apps for weight loss available on the Apple Store as of 2009. Of 204 apps, the authors found that only 15% followed 5 or more of the 13 evidence-based practices drawn from 4 U.S. governmental agencies (the Center for Disease Control and Prevention, National Institutes of Health, the Food and Drug Administration, and the US Department of Agriculture). To date, apps on the Apple store are censored if they use offensive or violent language; medical apps are not excluded if they are clinically ineffective. There is no equivalent of NICE approval on the Apple store. User ratings determine the popularity of an app, and such ratings are not too difficult to manipulate. Direct sales of medical apps to patients also raise concerns about the role that aggressive marketing could play in influencing the purchasing decision, irrespective of the effectiveness of the intervention. Pricing issues as well need to be taken into account if CCBT apps are to be accessed by the largest possible number of people.

Final reflections

What I have learnt from this study

The most important lesson I have learnt from this study is that *FF* implementation was mostly down to the people, not to the technology. For someone like me, who has devoted the last 5 years of his professional life to CCBT, it is every time fascinating (and at times frustrating) to see how people react to the idea of CCBT, whether they are my Italian friends ('Freud on the Internet') or the participants in this study.

The other important lesson I have learnt is the unfruitful quest to find the magic buttons for successful implementation. When I started the project, I thought that it would have been possible to 'crack it'. Over time, I realised there were no magic buttons. It depends

on each setting, although there are regularities and these have been the focus of my study.

Third, I have learnt the value of observation. Talking informally to the people I was working with and seeing their offices gave me hunches about who these people were and where they came from. I started to notice that those who had been managers and not clinicians seemed to be using *FF* more. Similarly, teams with a huge selection of self-help books on display seemed to use *FF* less. I decided to include these variables in the questionnaire and both were highly significant.

Finally I have learnt the importance of the experience on the ground. For me, this PhD has been everything but being in an ivory's tower. It meant at least 50,000 miles travelling across England over these years, meeting people in the NHS and listening to them. This has been fantastic. I have learnt so much from them.

What I would do differently next time

This study was initially conceived as a mainly-quantitative investigation. The goal of the project was to gather a 'national picture' of the factors influencing CCBT implementation. There is naturally a trade-off between the number of sites studied and the depth with which these sites can be studied. Given the resources available, relatively little time could be devoted to each site, and using the cross-sectional surveys (for the quantitative part) and single interviews (for the qualitative part) was considered the most efficient way of achieving wide coverage. The study, however, was 'broad but not deep'; I managed to collect data from a high number of sites, but the depth of information I could gather from each PCT was relatively small.

An alternative approach would have been to select a smaller number of PCTs (e.g. 4), sampling them according to throughput and completion rates on *FF* (high/high, high/low, low/high, low/low) and study them in much more detail. I could have focused on how these PCTs changed longitudinally. I would have retained the mixed-methods methodology, but I would have conducted the qualitative part first (sequential rather than concurrent design).

Focusing on 4 PCTs instead of 30 would have reduced significantly the amount of admin work. The time saved could have been spent interviewing a wider range of participants. It would have included commissioners and, most importantly, Supporters

as this study has shown the latter to be the most important group in deciding the choice of treatment for patients. Focus groups with them could have been particularly informative. Patients as well could have been interviewed, as they would have given a different perspective which none of the other participants had. I could have set up an independent steering group with stakeholders from all relevant groups (clinicians, patients, managers, commissioners). This would have been particularly important given my involvement with the company marketing the treatment under study.

Once the qualitative part of the research was completed, its findings would have informed the development of questionnaires. I would have focused on fewer variables, assessed the validity and reliability of the questionnaire, and administered it to participants to test specific hypotheses. It is possible that by limiting the number of sites, some of the limitations described on p.199 (e.g. inability to access electronic records containing patients' diagnoses) might have been overcome, thus removing the need for Leads and Supporters to provide an estimate to some of the questions and increasing the overall validity of the quantitative results.

APPENDICES

I. Participating PCTs (in alphabetical order)

1. Ashton, Leigh and Wigan
2. Blackpool
3. Bradford and Airedale Teaching
4. Central and Eastern Cheshire
5. Coventry Teaching
6. Derby City
7. Derbyshire County
8. Ealing
9. Greenwich Teaching
10. Haringey Teaching
11. Hartlepool
12. Havering
13. Hertfordshire
14. Hull Teaching
15. Kingston
16. Kirklees
17. Middlesbrough
18. Newcastle
19. Newham
20. North East Essex
21. North East Lincolnshire
22. Nottinghamshire County Teaching
23. Oldham
24. Oxfordshire
25. Peterborough
26. Redcar and Cleveland
27. Sheffield
28. Stockton-on-Tees Teaching
29. Stoke on Trent
30. Warrington

II. Questionnaires' questions

a) Supporters

- What is your job title?
- How many months have you been in your current post?
- Have you ever used any CCBT package in a previous post?
- In which organisation(s) have you used CCBT before?
- Which CCBT package(s) did you use?
- How many months have you used the following CCBT packages in your previous post(s)?
- In your current post, please select which NICE-recommended CCBT package(s) you have used with patients at least once
- How many months have you been using *FF*?
- Each month, how many patients do you normally set up on *FF*?
- If most of your support sessions are via phone, do you schedule them in advance with the patient?
- How many support sessions per *FF* patient do you normally give?
- How many minutes on average does each support session last per *FF* patient?
- The time it takes on average to support a *FF* patient is (definitely less/less/in line/more/definitely more than what you expected)
- Over how many weeks do you normally support a *FF* patient?
- Do you guide your patients (either via phone or in person) through their first login to *FF*?
- Do you personally like *FF*?
- Are you keen to recommend *FF* to your patients?
- Please say something you like about *FF*
- Please say something you don't like about *FF*
- Please list the following treatments in the order of your preference (individual face-to-face, guided self-help, pure self-help, psycho-educational groups, CCBT, behavioural activation)
- When deciding what treatment is best for your patients, who normally makes the first step?
- Do you use *FF* together with other treatments?

- When do you normally use *FF*?
- Did you attend initial training for *FF*?
- Did you find the *FF* training useful?
- With regards to your professional training (PT), the training on *FF* took place (before/at the beginning/half way through/at the end/after)
- Did the training on *FF* fit well with your professional training?
- Did you go through *FF* as a stooge patient?
- Please list up to three topics you'd like to discuss in a *FF* workshop
- Did you attend any *FF* workshop?
- Did you find the *FF* workshop useful?
- Which version of *FF* did you use with your patients initially?
- In your opinion, what are the barriers that prevented you from using *FF* more often with your patients?
- In your opinion, what are the factors that could boost the uptake of *FF* with your patients?
- Please state whether the following *FF* statements apply to you (it fits well in my organisation, I feel deskilled using it, my patients feel empowered by using it, I had technical difficulties supporting patients using it, I can't find suitable patients for it, it makes my professional life easier, my patients feel they have been given a second-class therapy, my patients prefer other treatments, my patients had technical difficulties using it, NICE approval is an important factor in deciding whether to recommend it to my patients)

b) Leads

- What is your job title?
- How many months have you been in your current post?
- How would you define your past experience?
- Who can refer to your service?
- Referrals coming through to your service are normally (screened/assessed/both)
- Who will normally screen patients?
- How many minutes on average does each screening last per patient?
- What is the usual means of communication during the screening?
- Which tools are used for the screening?
- Who will normally assess patients?
- How many minutes on average does each assessment last per patient?
- What is the usual means of communication during the assessment?
- Which tools are used for the assessment?
- How many referrals per month does your service normally receive?
- Out of all the referrals received, how many on average are considered suitable to be treated by your service?
- lease insert average number of days from referral being made to (referral received/screening/assessment/Step 2 treatment/Step 3 treatment)
- At what point is CCBT normally considered as an option to be offered to patients?
- Please insert the % of turnover in your staff over the last year
- Which books does your service provide?
- Which CCBT packages does your service provide or has provided in the past?
- What would you consider 'acceptable' and 'excellent' results for *FF* in your service (in terms of throughput, completion rates, and clinical improvement)?
- In your opinion, which were the barriers that limited the uptake of *FF* in your organisation?
- In your opinion, which are the factors that could boost the uptake of *FF* in your organisation?
- Please state whether the following *FF* statements apply to you (it helps achieving my targets, it fits well in my organisation, NICE approval is an important factor in deciding whether to recommend it to my patients)

c) Nurse Advisors[29]

- Which Nurse Advisor are you?
- When did you start in your current role with CCBT Ltd?
- How many training sessions have you carried out so far? (by month)
- How many workshop have you carried out so far? (by month)
- How many GP surgeries have you visited so far? (by month)
- Was the PCT's organisational structure flexible and adaptive? (i.e. whether you erceived the team was willing to be as much flexible as possible in order to better deliver *FF*)
- Did the PCT's organisational structure support devolved decision making? (i.e whether you could quickly agree actions with people you were working with)
- Was the PCT's organisational structure flexible and adaptive? (i.e. whether you perceived the team was willing to be as much flexible as possible in order to better deliver *FF*)
- Was the PCT's top management (commissioners) supportive?
- Was there a continuing commitment to implementation in the PCT? (i.e. a continuous effort over time to make *FF* a success)
- Was *FF* aligned with the prior goals of middle (clinical leads/service managers) and top (commissioners) management in the PCT? (i.e. if *FF* was something "wanted" by the management)
- Was the clinical lead/service manager involved?
- Were the supporters involved?
- Did the training session(s) with this PCT go well?
- Did the workshop(s) with this PCT go well?
- Did the GP visits with this PCT go well?
- Were funding agreements sorted out smoothly so that they did not impede your activities? (e.g. whether a commissioner decided to buy/renew *FF* licenses without delay)
- Was communication within the PCT effective? (e.g. between clinical lead and service manager, or between clinical lead and supporters)

[29] Answers were provided for each PCT the NA was working with.

- Were the PCT staff you worked with part of an active extra-organisational network? (e.g. an IAPT service whose staff were actively involved in conferences and events vs. a smaller team which worked more in isolation)
- Did you receive positive feedback about *FF* in general (not about your performance)?
- Did PCT staff perceive *FF* and the *PPMS* as having potential for modification in order to suit their needs better? (i.e. whether they thought they could customise *FF*/*PPMS* enough to meet their needs - "definitely not" means they thought *FF*/*PPMS* were too rigid)

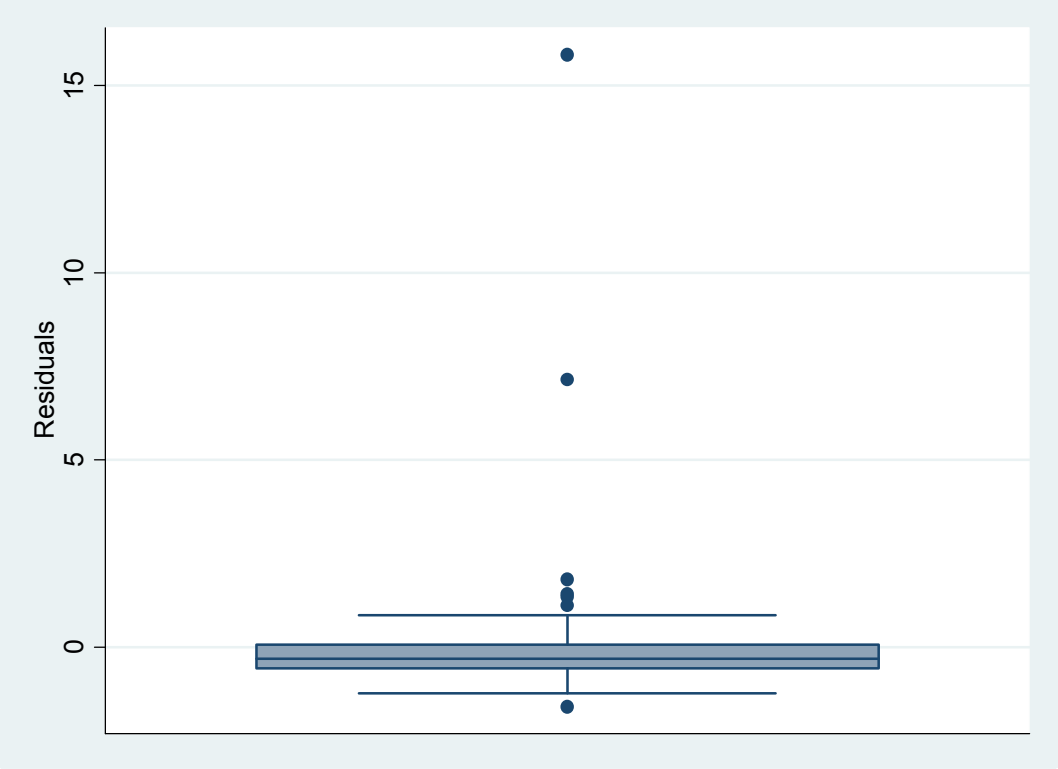
III. Assumptions for regression analyses

a) Supporters

Throughput

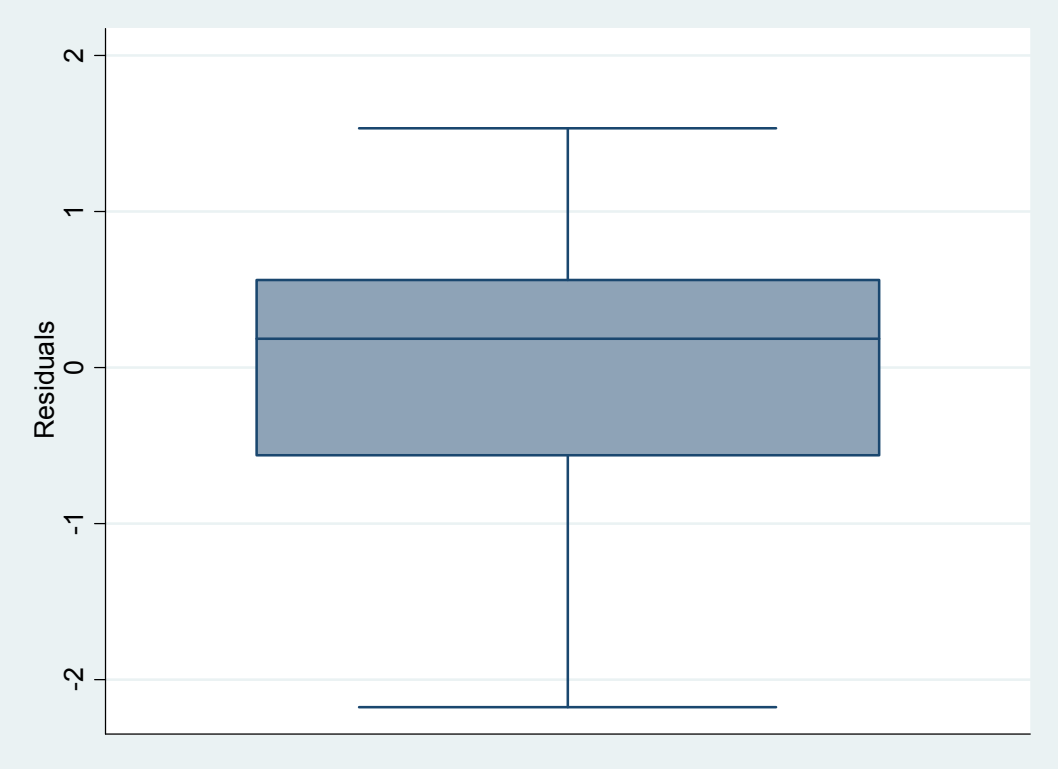
Residuals are normally distributed (box plot of residuals)

Box plot of residuals of the original Supporters' throughput variable shows 2 highly-influential outliers

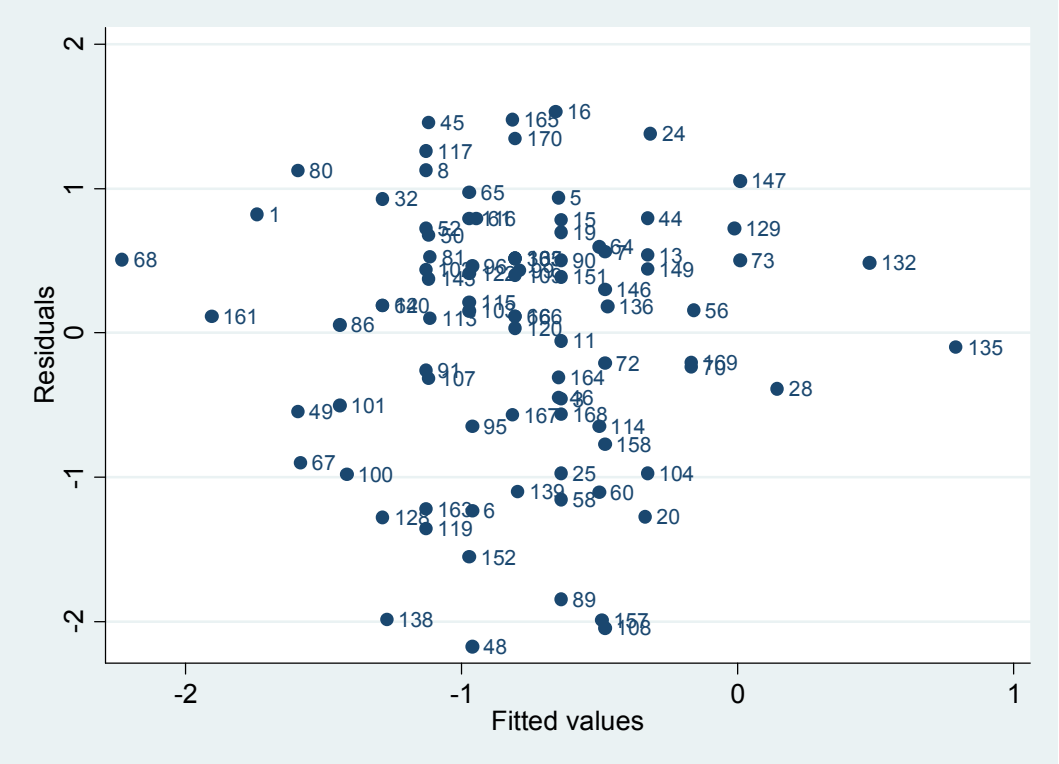


Removing them is not justified. The outliers were 2 *FF* "super-users", one working in a CCBT-only service and the other working in an IAPT service but in a CCBT-only role.

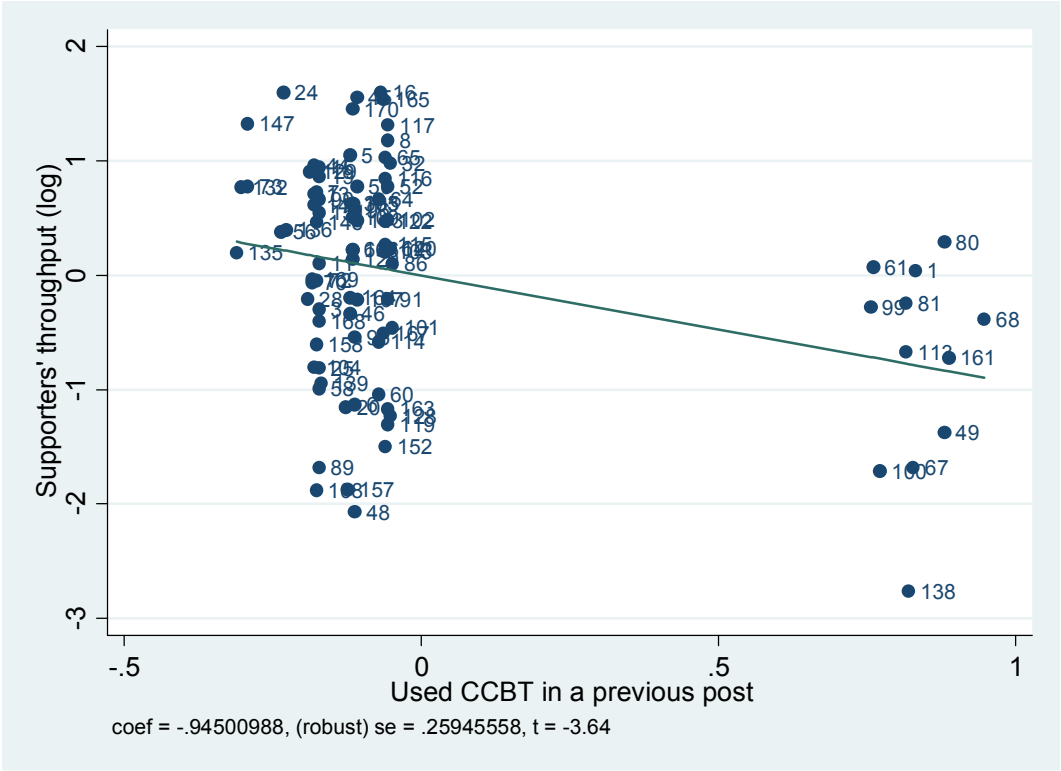
After log transformation, the residuals are normally distributed.

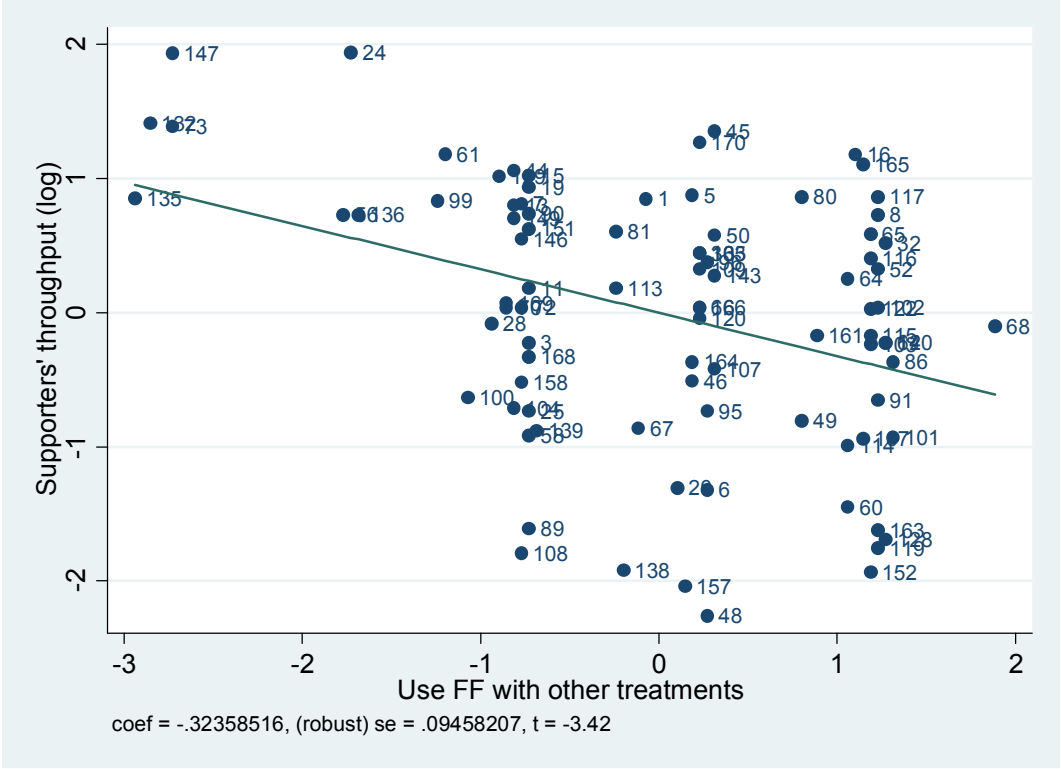


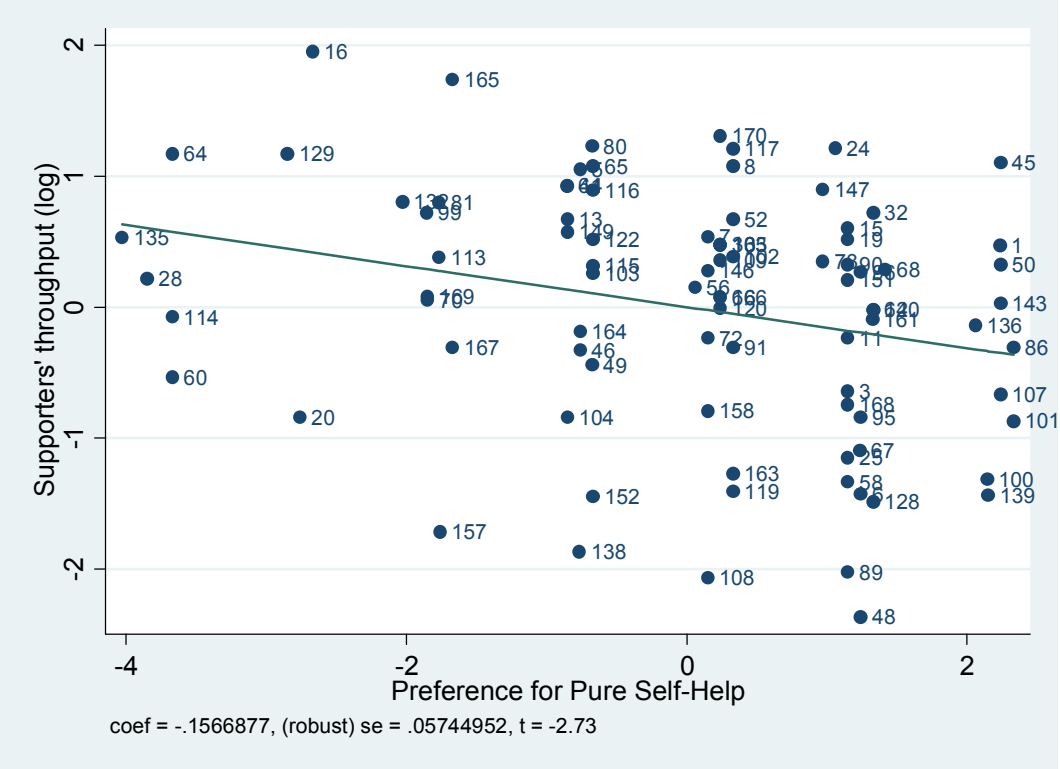
Residuals have constant variance (plot of fitted values against residuals)



Linear relationship between x_i and y (partial residual plots)







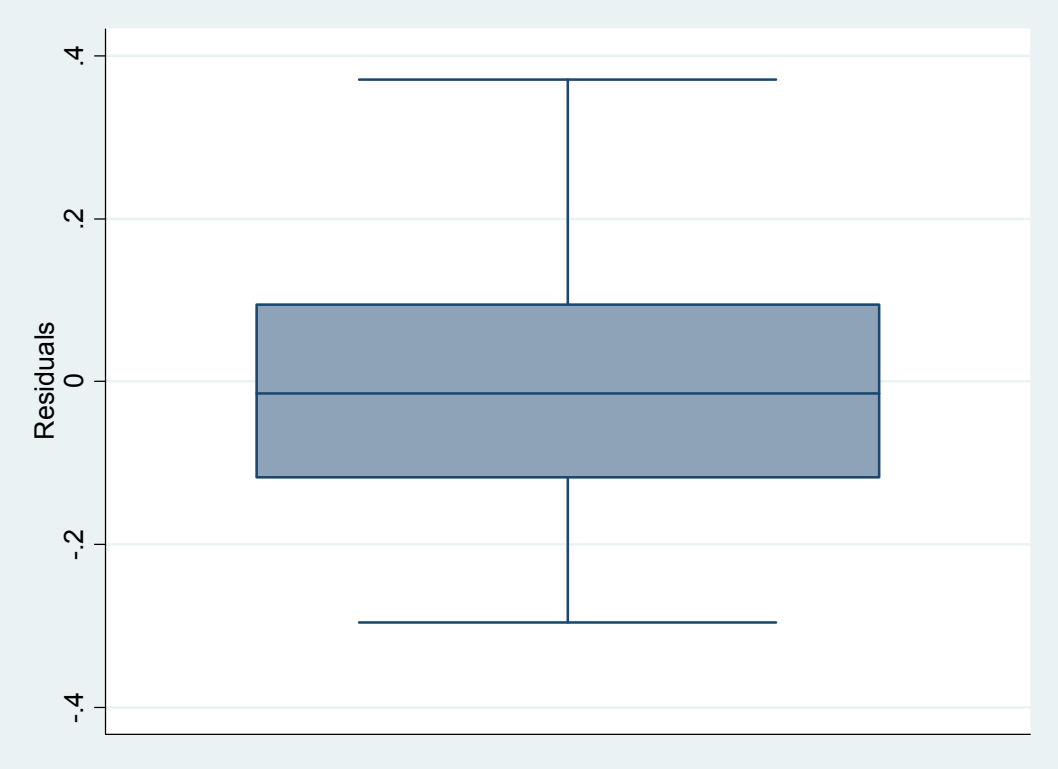
Multicollinearity (Variance Inflation Factor)[30]

Variable	VIF	1/VIF
Use *FF* with other treatments	1.04	0.96
Used CCBT in a previous post	1.04	0.96
Preference for pure self-help	1	1
Mean VIF	1.03	

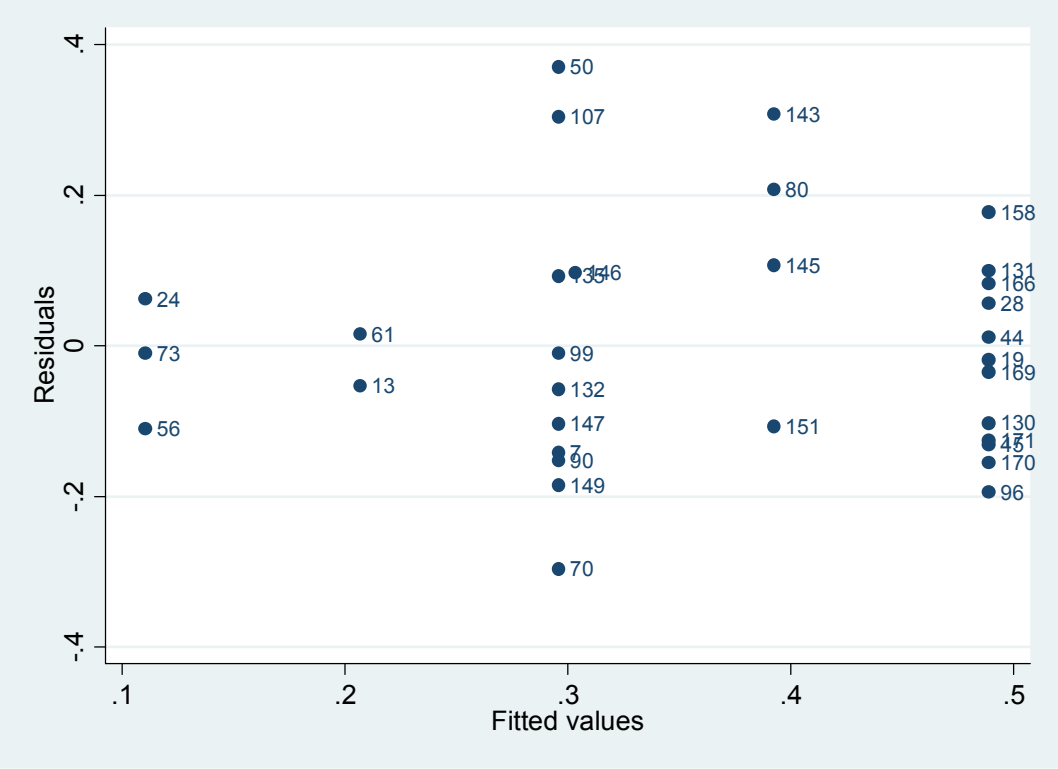
[30] VIF should be <10.

Completion rates

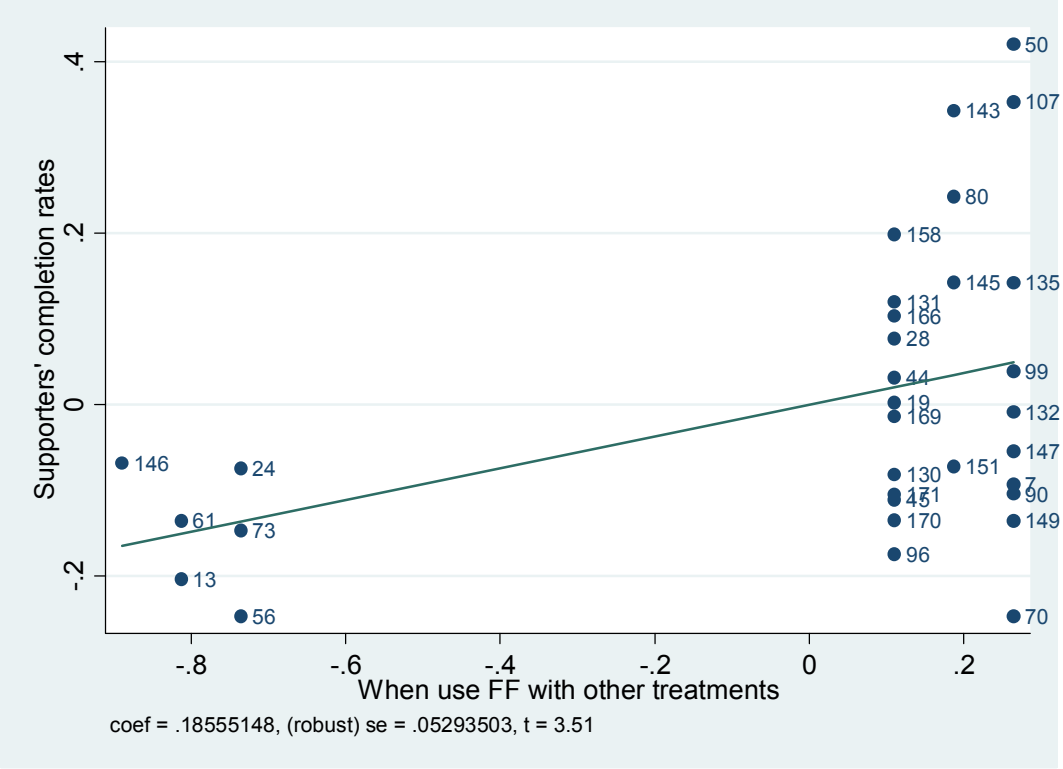
Residuals are normally distributed (box plot of residuals)

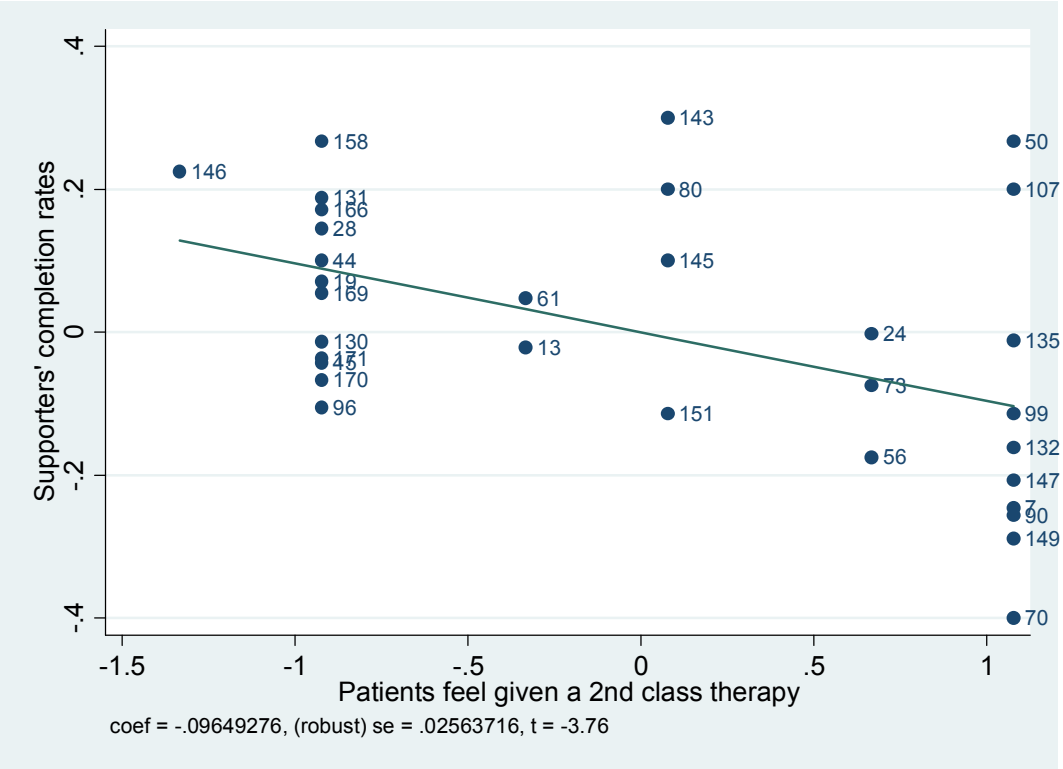


Residuals have constant variance (plot of fitted values against residuals)



Linear relationship between x_i and y (partial residual plots)





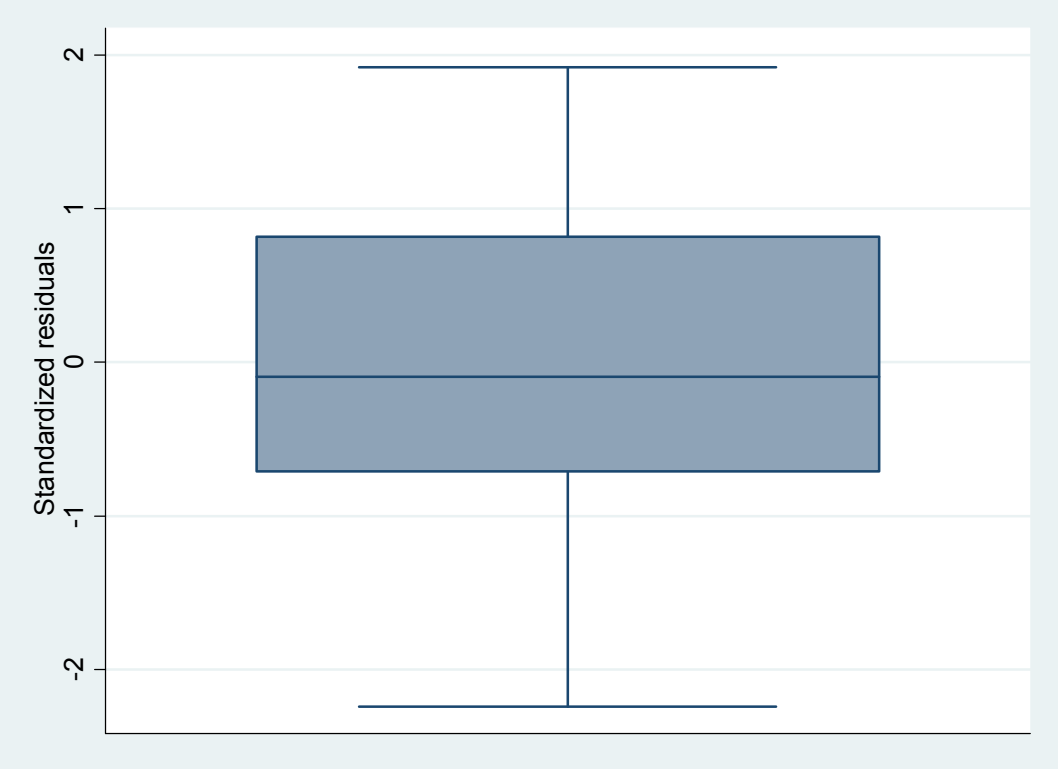
Multicollinearity (Variance Inflation Factor)

Variable	VIF	1/VIF
When use *FF* with other treatments	1.03	0.97
Patients feel given a 2nd class treatment	1.03	0.97
Mean VIF	1.03	

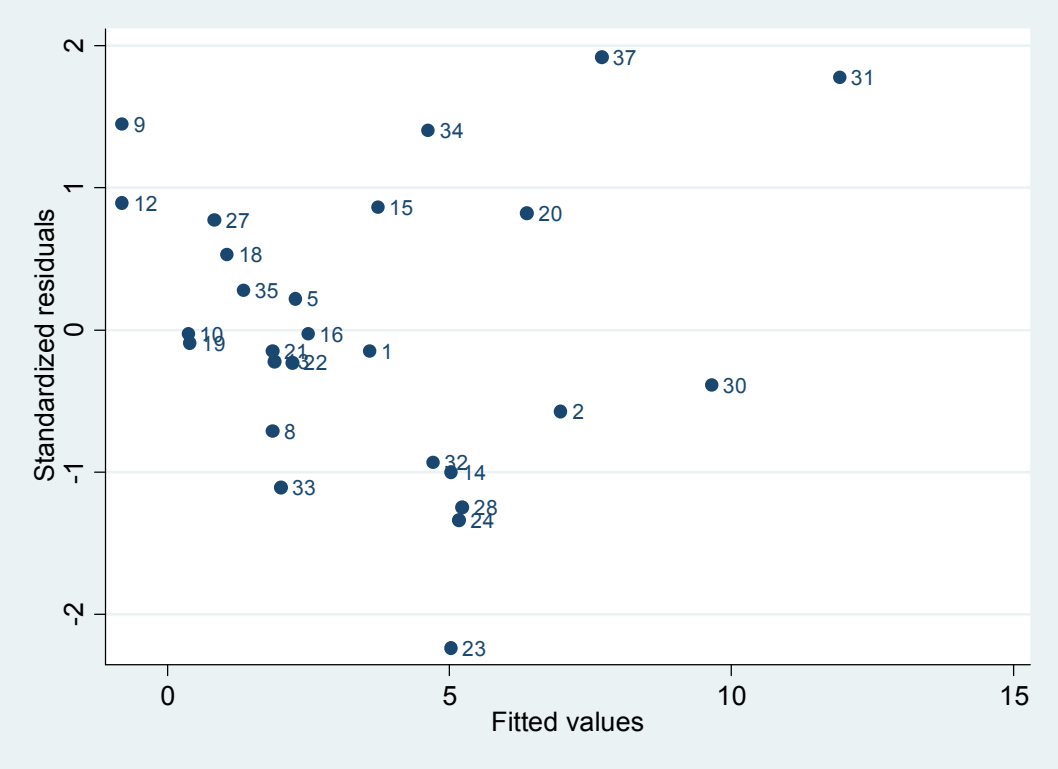
b) Leads

Throughput

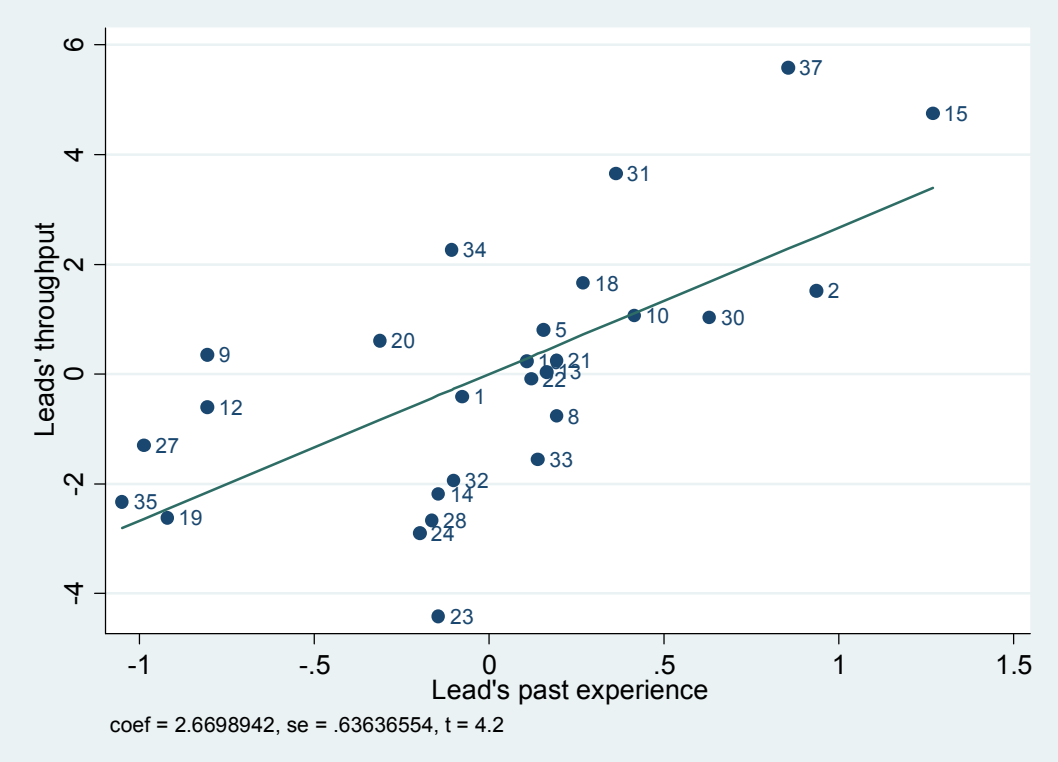
Residuals are normally distributed (box plot of standardised residuals)

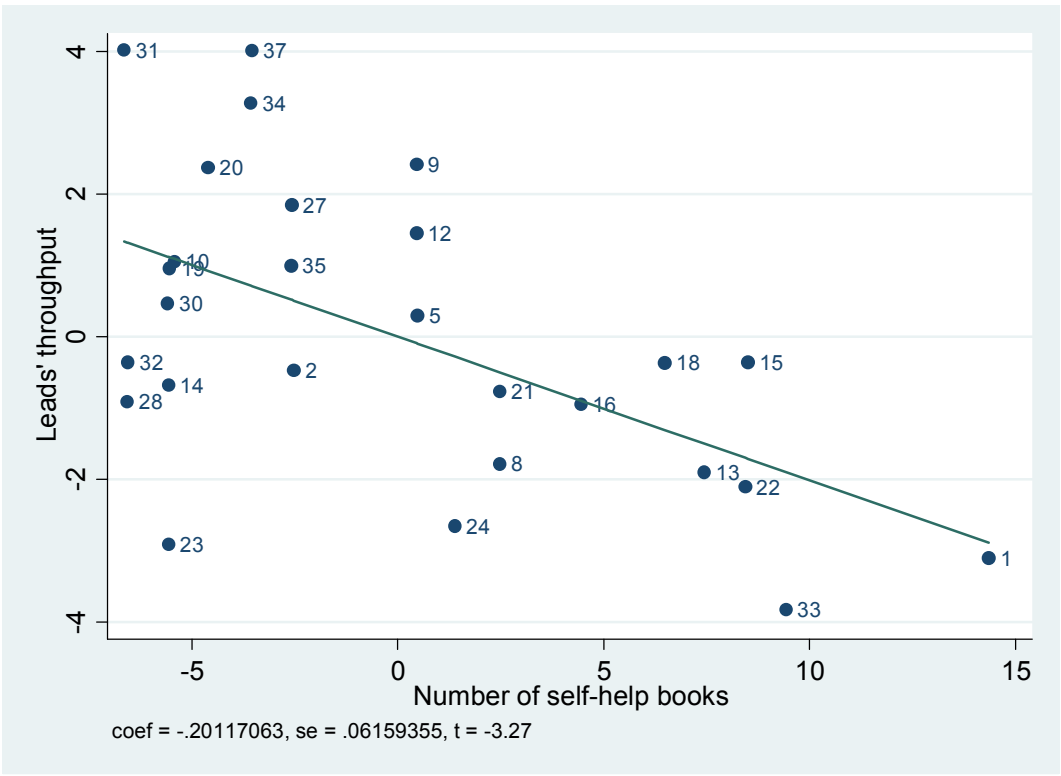


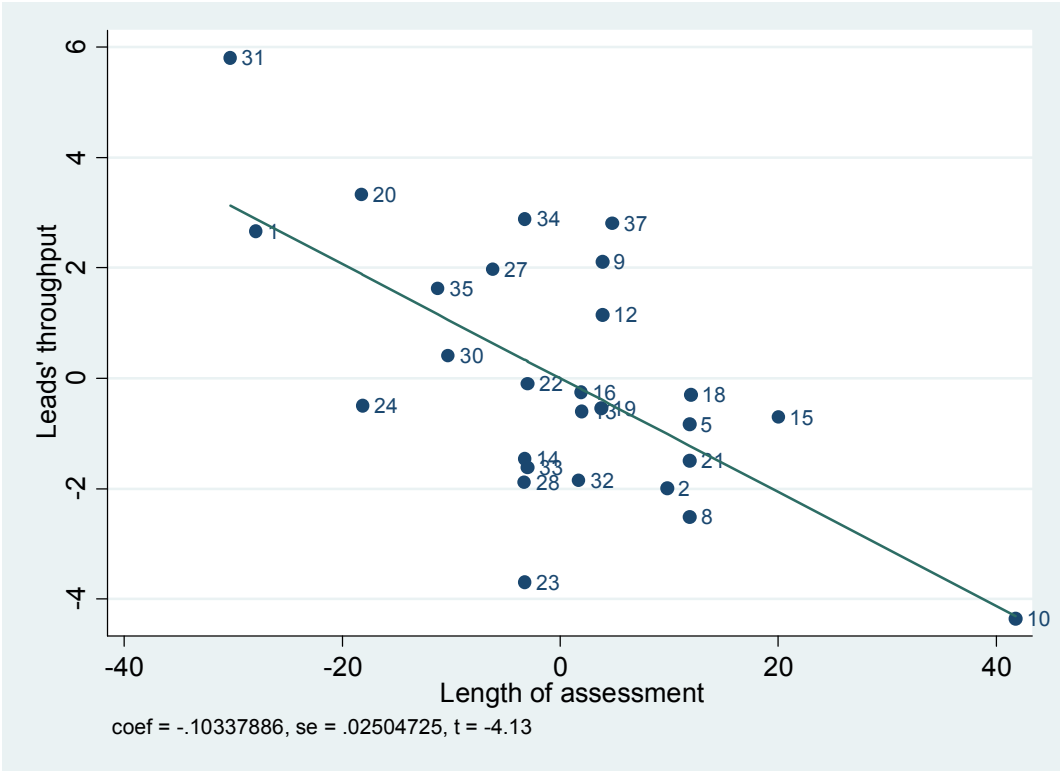
Residuals have constant variance (plot of fitted values against standardised residuals)



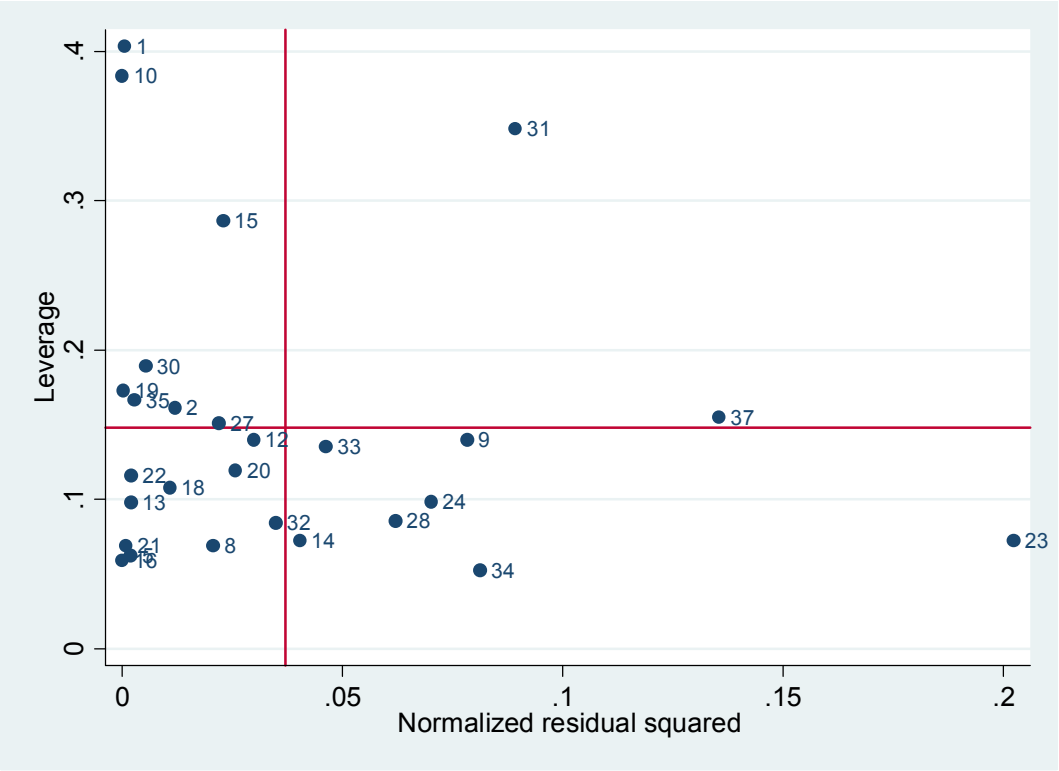
Linear relationship between x_i and y (partial residual plots)




Leads' throughput
Number of self-help books
coef = -.20117063, se = .06159355, t = -3.27


Leads' throughput
Length of assessment
coef = -.10337886, se = .02504725, t = -4.13

Influential cases (plot of leverage vs. squared residuals)

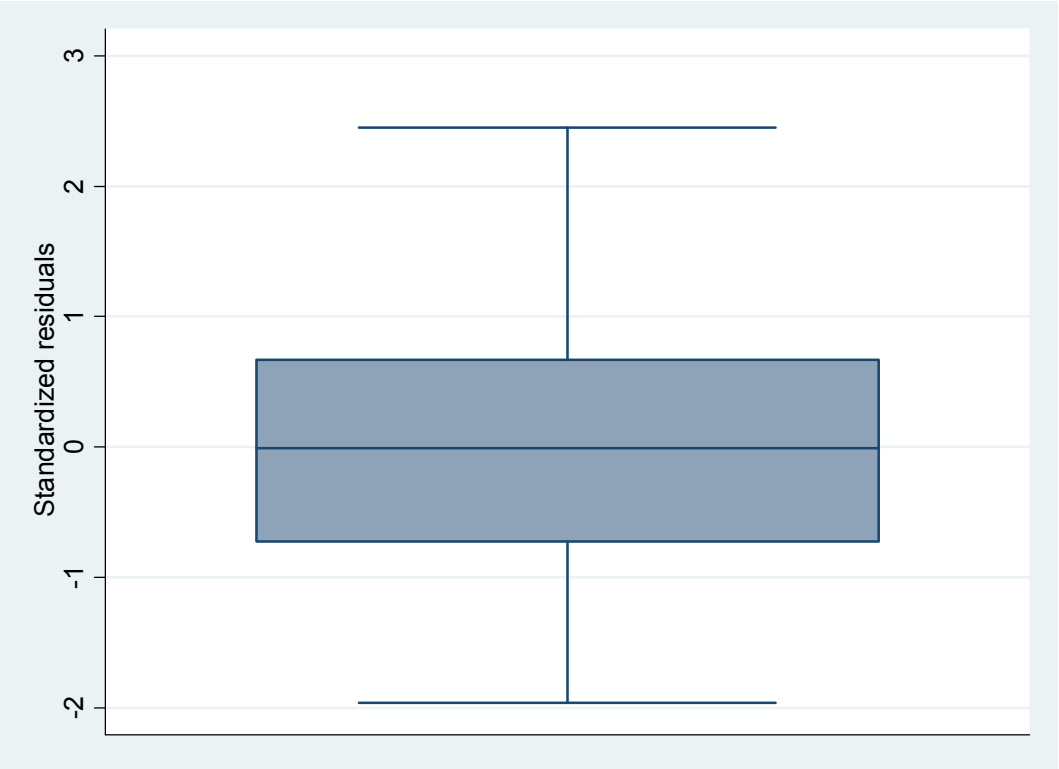


Multicollinearity (Variance Inflation Factor)

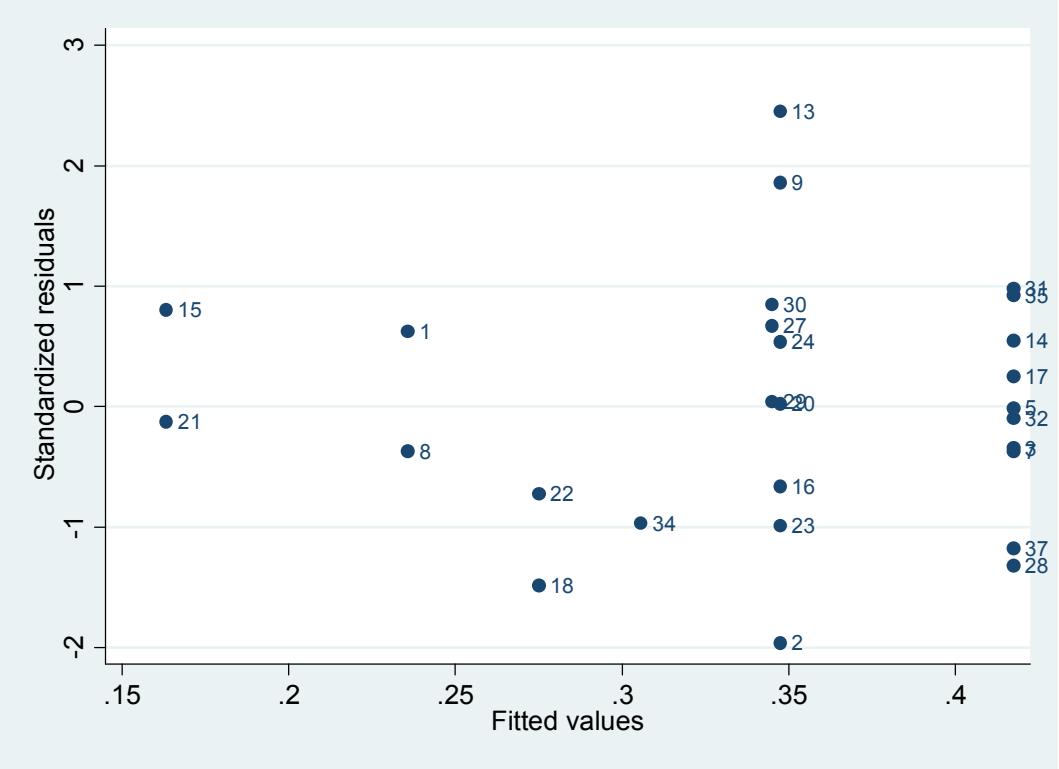
Variable	VIF	1/VIF
Lead's past experience	1.16	0.86
Length of assessment	1.12	0.90
Number of self-help books	1.04	0.96
Mean VIF	1.11	

Completion rates

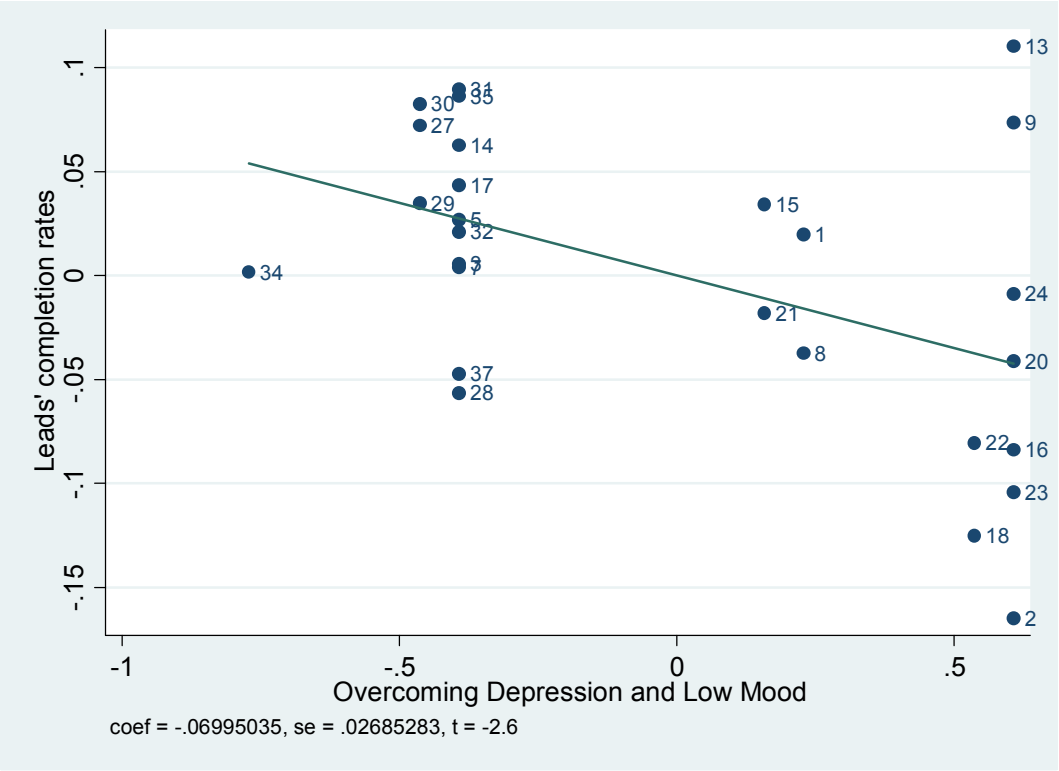
Residuals are normally distributed (box plot of residuals)

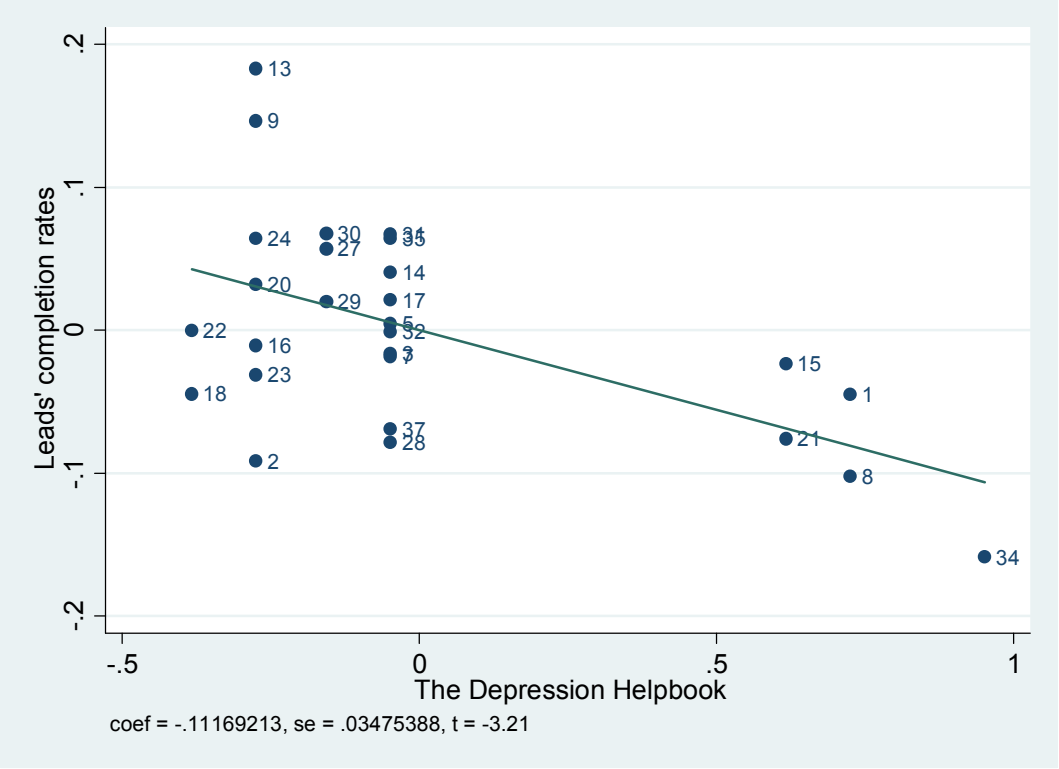


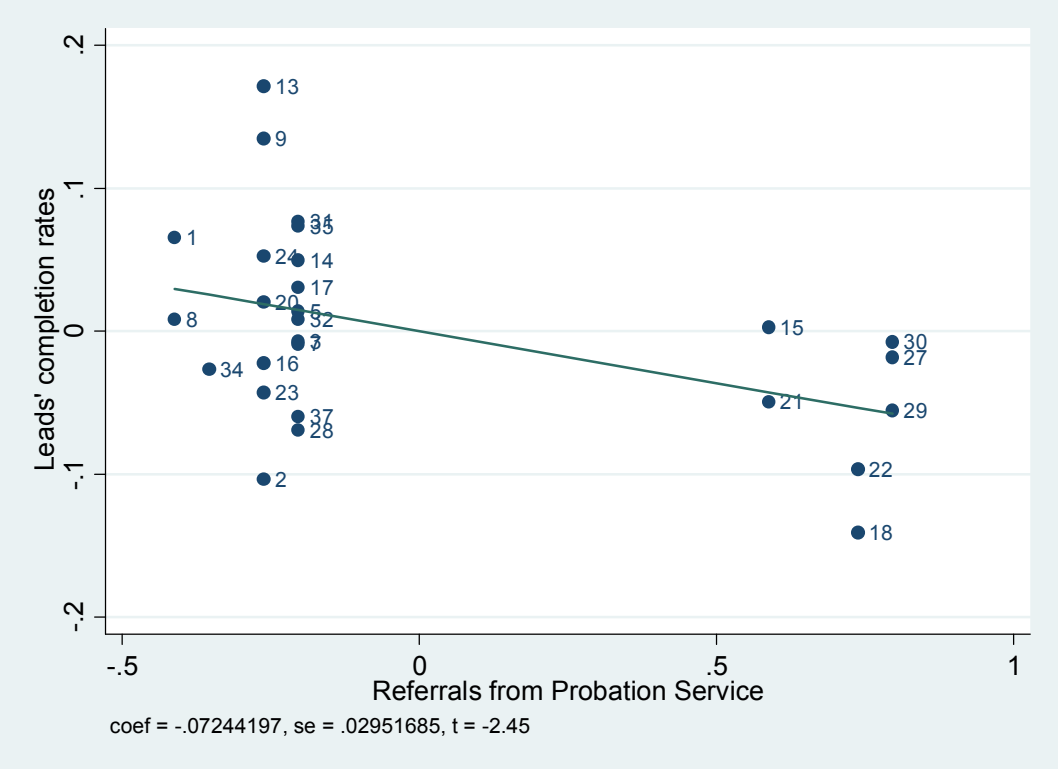
Residuals have constant variance (plot of fitted values against residuals)



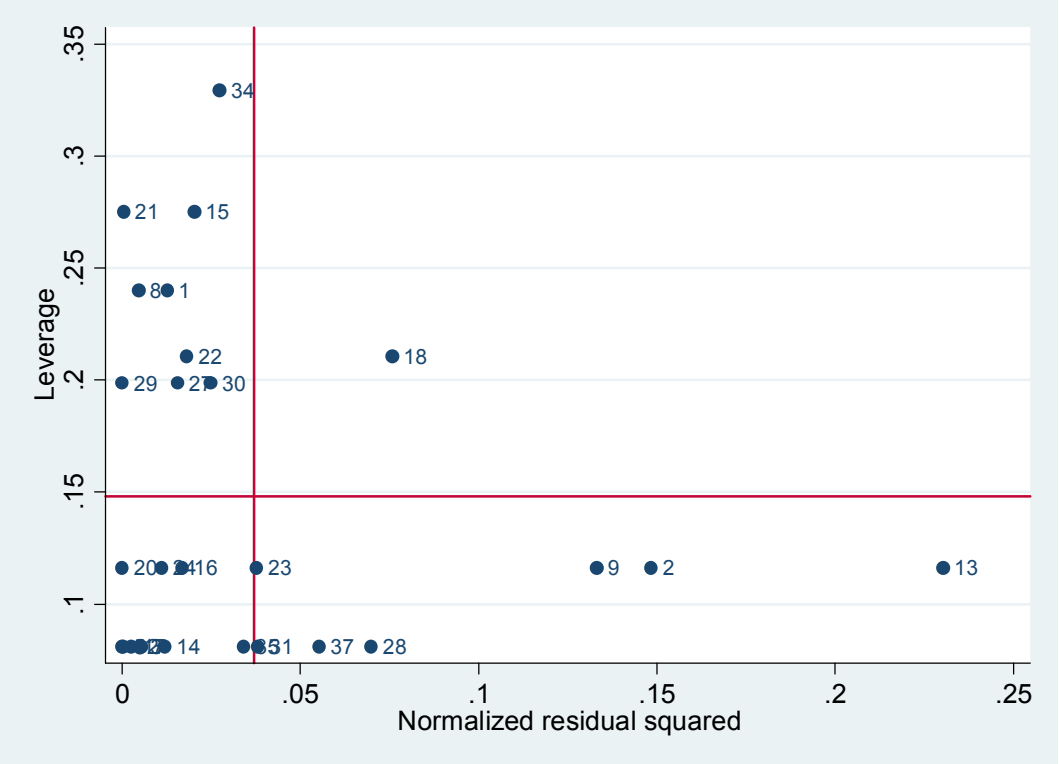
Linear relationship between x_i and y (partial residual plots)







Influential cases (plot of leverage vs. squared residuals)



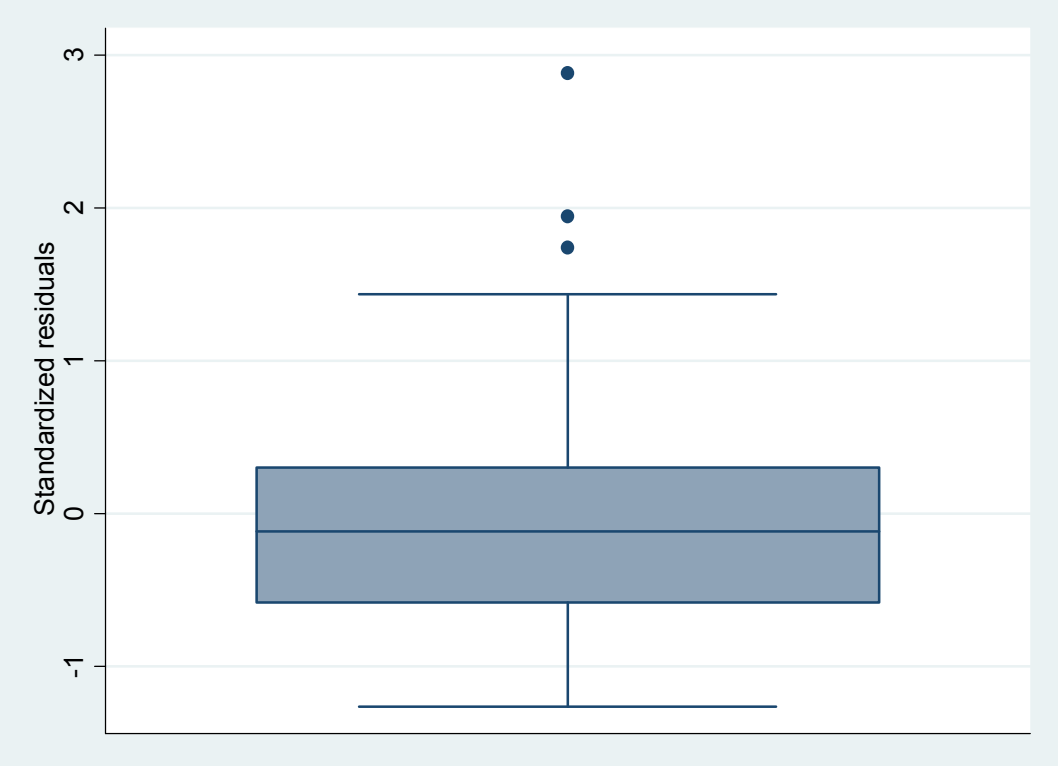
Multicollinearity (Variance Inflation Factor)

Variable	VIF	1/VIF
The Depression Helpbook by Katon	1.12	0.89
Overcoming Depression and Low Mood by Williams	1.11	0.90
Referrals from Probation Service	1.03	0.97
Mean VIF	1.08	

Clinical improvement

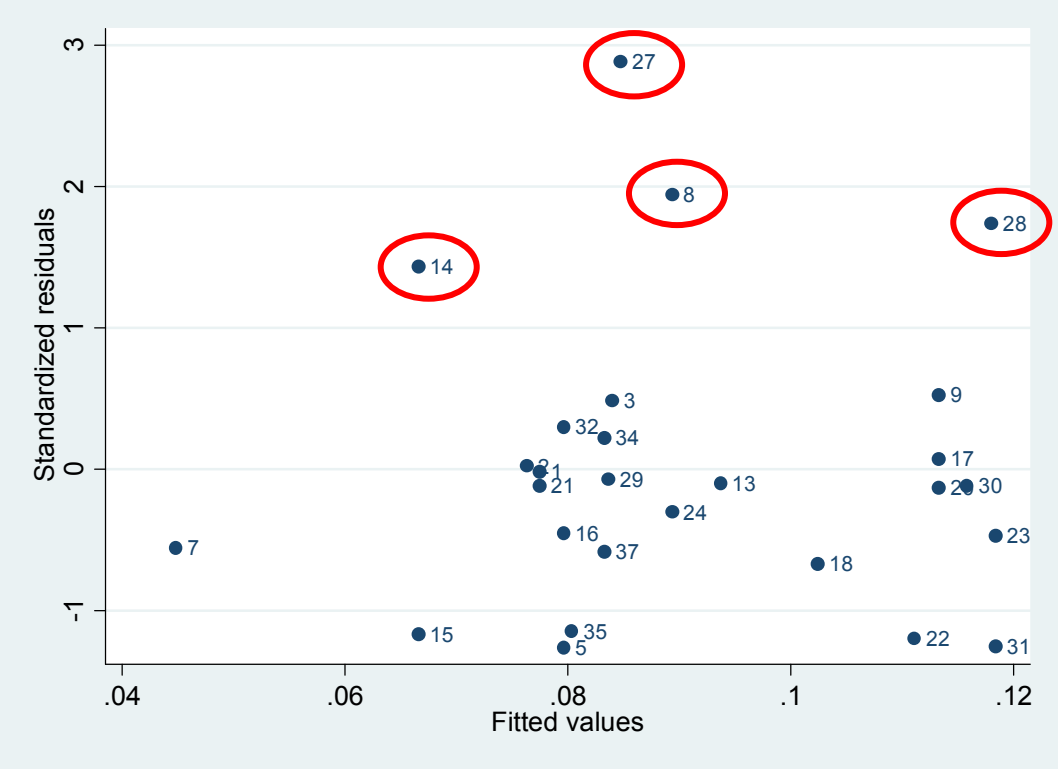
Residuals are normally distributed (box plot of residuals)

As a guideline, standardised residuals should not be > |3| and no more than 5% of residuals should be >|2|. The residual on the top of the graph below accounts for 3% of all residuals.

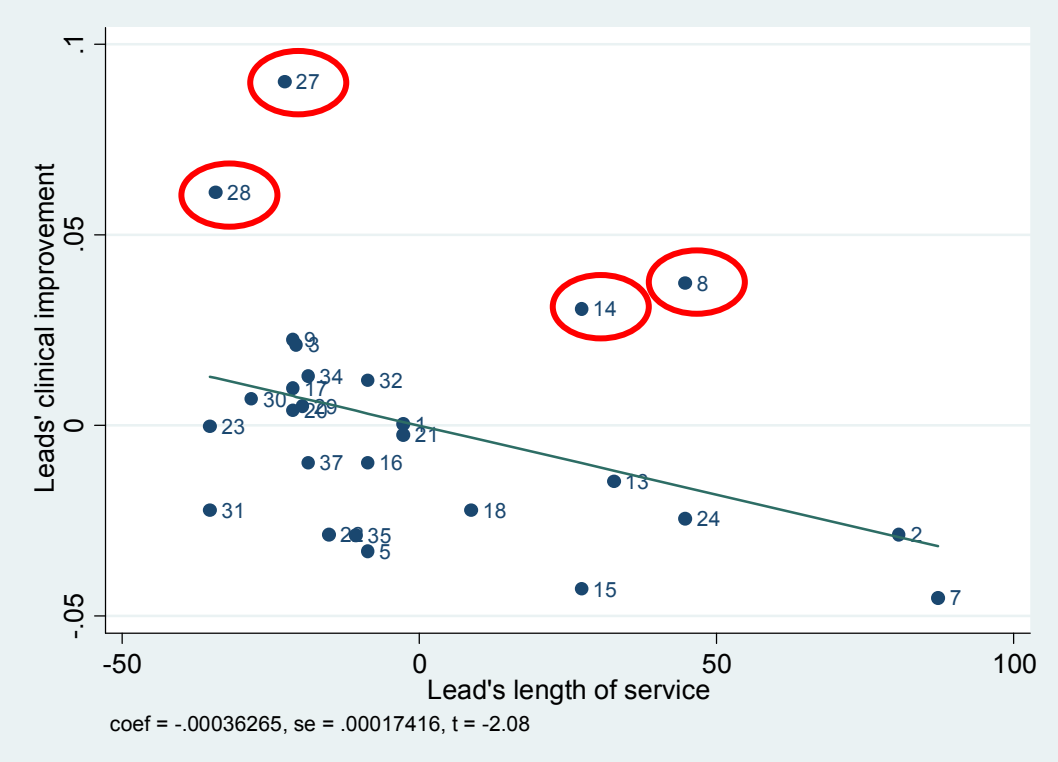


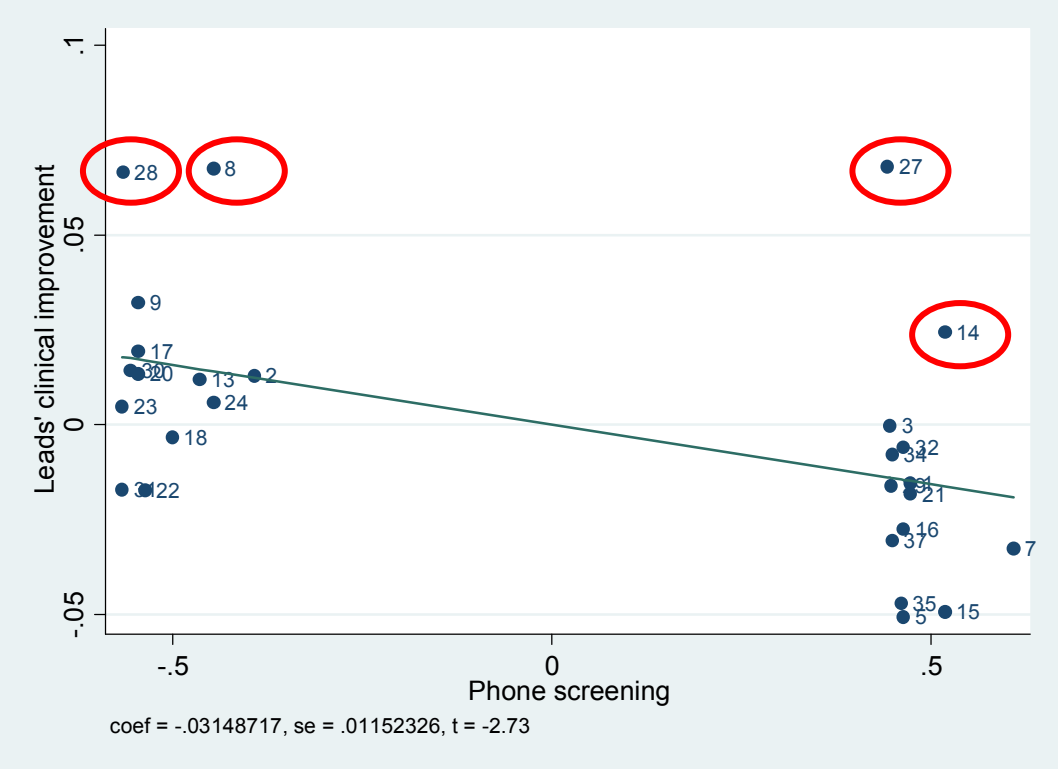
Residuals have constant variance (plot of fitted values against residuals)

The plot reveals 4 influential cases. The Huber Sandwich (robust) estimator is therefore used.



Linear relationship between x_i and y (partial residual plots)



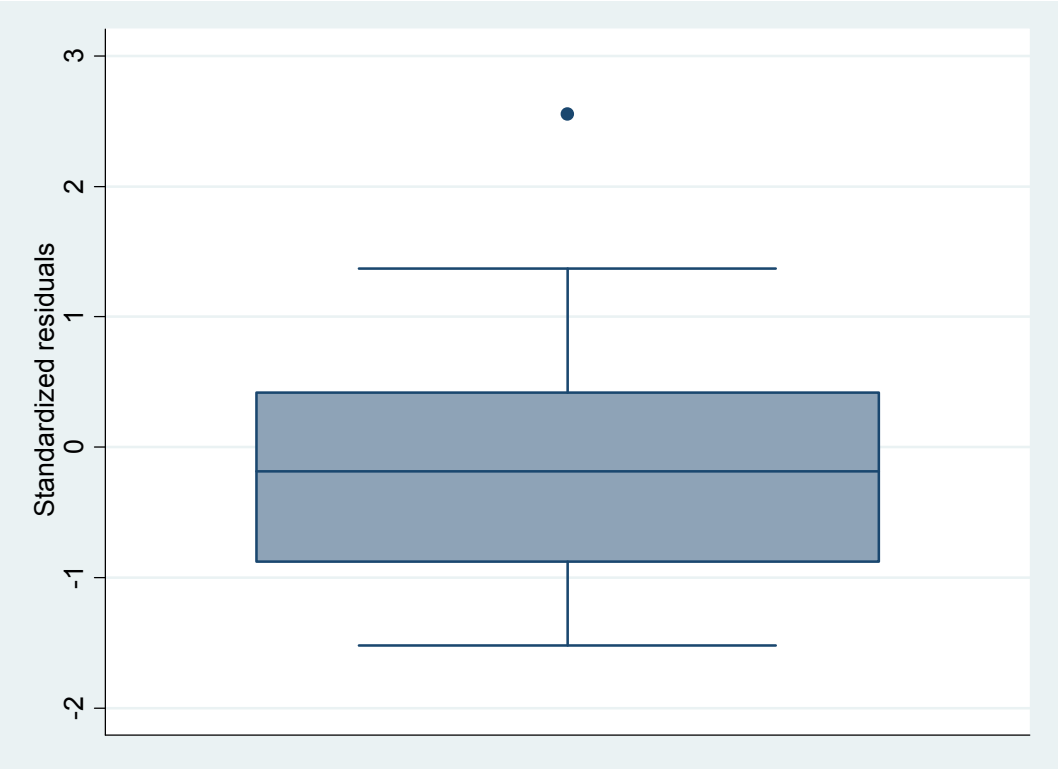


Multicollinearity (Variance Inflation Factor)

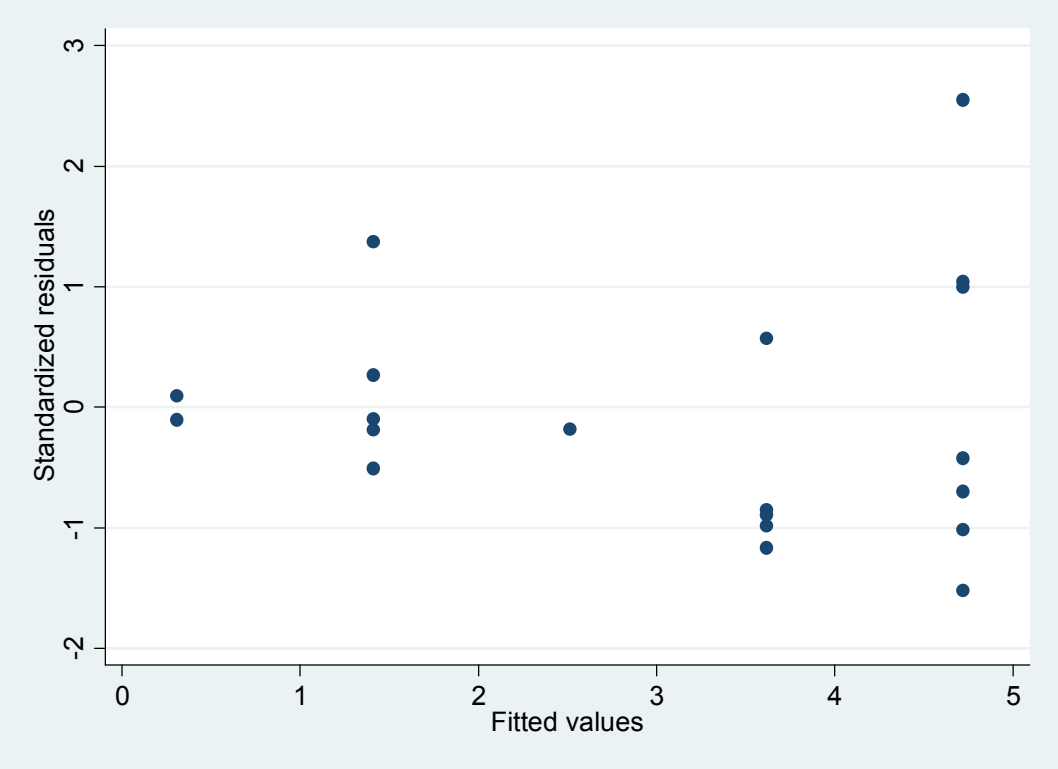
Variable	VIF	1/VIF
Lead's length of service	1.01	0.99
Phone screening	1.01	0.99
Mean VIF	1.01	

c) Nurse Advisors

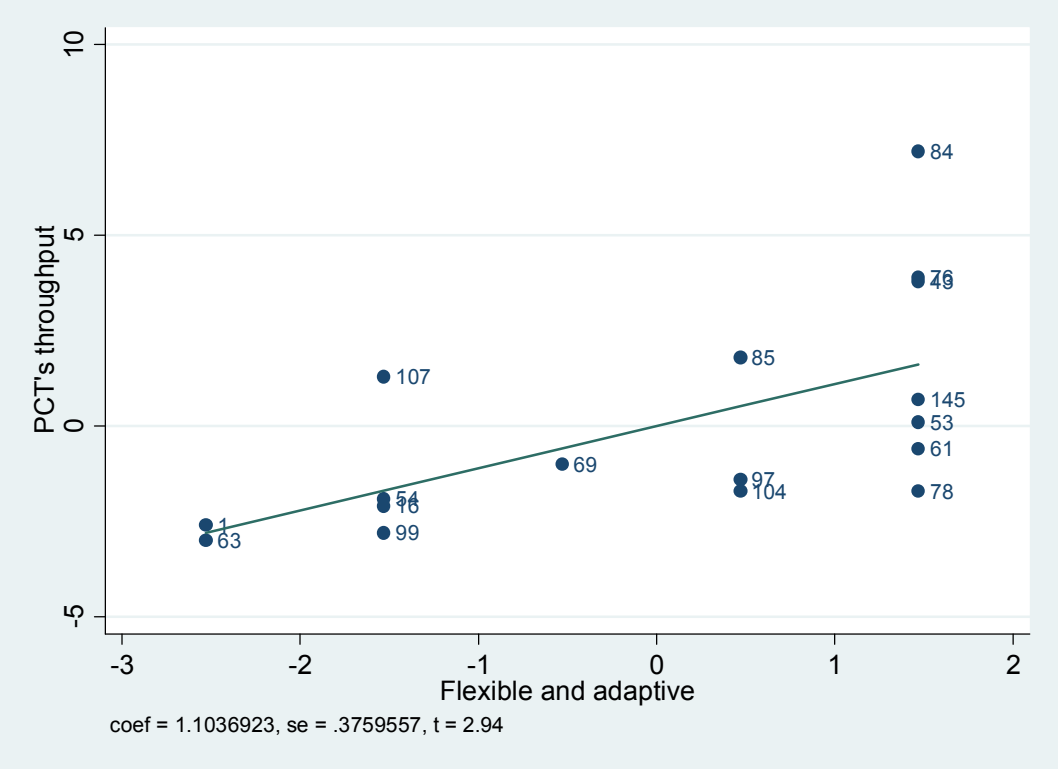
Residuals are normally distributed (box plot of residuals)



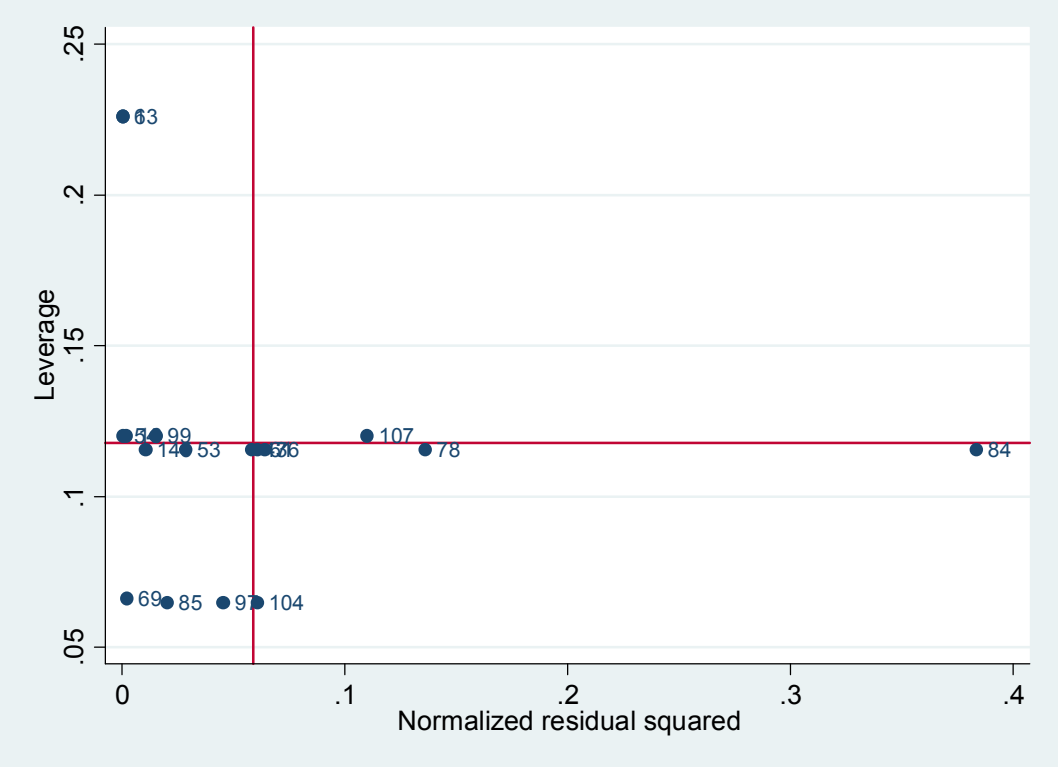
Residuals have constant variance (plot of fitted values against residuals)



Linear relationship between x_i and y (partial residual plots)



Influential cases (plot of leverage vs. squared residuals)



IV. Qualitative analyses

a) Glossary for Greenhalgh et al's model

NO.	CATEGORY/ITEM	DEFINITION
	I. THE INNOVATION	*Key attributes of innovations which explain a high proportion of the variance in adoption*
1	Relative advantage	Innovations that have a clear, unambiguous advantage in terms of either effectiveness or cost-effectiveness will be more easily adopted and implemented
2	Compatibility	Innovations that are compatible with the intended adopters' values, norms, and perceived needs are more readily adopted
3	Low complexity	Innovations that are perceived by key players as simple to use will be more easily adopted
4	Trialability	Innovations that intended users can experiment with on a limited basis will be more easily adopted and assimilated
5	Observability	If the benefits of an innovation are visible to intended adopters, it will be more easily adopted
6	Potential for reinvention	If a potential adopter can adapt, refine or otherwise modify the innovation to suit his or her own needs, it will be more easily adopted
7	Risk	If the innovation carries a high degree of uncertainty of outcome that the individual perceives as personally risky, it is less likely to be adopted
8	Task issues	If the innovation is relevant to the performance of the intended user's work and if it improves task performance, it will be adopted more easily
9	Nature of knowledge required (tacit or explicit)	If the knowledge required for the innovation's use can be codified and transferred from one context to another, it will be adopted more easily
10	Technical support	If a technology is supplied as an "augmented product" (e.g., with customization, training, and a help desk), it will be assimilated more easily

	II. THE ADOPTER	*Key attributes of the adopters (individuals) which explain a high proportion of the variance in adoption*
11	Needs	If the innovation meets an identified need in intended adopters, they are more likely to adopt it
12	Motivation	An intended adopter who is motivated to use a particular innovation is more likely to adopt it
13	Values and goals	If the adoption of the innovation accords with behaviour congruent with the individual's identity ('this is something that someone like me would do in these circumstances'), it is more likely to be adopted
14	Skills	An intended adopter who is capable (in terms of specific skills) to use a particular innovation is more likely to adopt it
15	Learning style	If the adoption of the innovation accords with the individual's learning style, it is more likely to be adopted
16	Social networks	The adoption of innovations by individuals is influenced by the structure and quality of their social networks
	III. ASSIMILATION	*Process by which an innovation is adopted by an organisation*
17	Complex, non linear process	Successful routinisation is generally a non-linear process characterised by multiple shocks, setbacks and unanticipated events
18	'Soft periphery' elements	The organisational structures and systems that are required for the full implementation of the innovation
	IV. COMMUNICATION AND INFLUENCE	*Influences that promote the spread of innovation lie on a continuum between Diffusion (unplanned, informal, decentralised, horizontal, peer-mediated) and Dissemination (planned, formal, centralised, vertical hierarchies)*
19	Social networks	Patterns of friendship, advice, communication and support that exists among members of a social system can influence adoption
20	Homophily	Adoption is more likely if prospective adopters are similar in terms of socio-economic, educational, professional and cultural background with current users of the innovation
21	Peer opinion	Peer opinion leaders influence by virtue of

		representativeness and credibility
22	Marketing	The study of the production, distribution and consumption of goods and services
23	Expert opinion	Expert opinion leaders influence through their authority and status
24	Champions (network facilitators)	Adoption of an innovation by individuals in an organisation is more likely if key individuals within their social networks are willing to back the innovation
25	Boundary spanners	An organisation is more likely to adopt an innovation if individuals who have significant social ties both within and outside the organisation can be identified
26	Change agents	An individual who influences clients' innovation decisions in a direction deemed desirable by a change agency
	V. SYSTEM ANTECEDENTS FOR INNOVATION	*Some pre-existing features of organizations (both structural and "cultural") influence the likelihood that an innovation will be successfully assimilated*
	a) Structural determinants	Structural determinants significantly, positively, and consistently associated with organizational innovativeness
27	Size	Large organisations are more likely to innovate
28	Maturity	Mature organisations are more likely to innovate
29	Formalisation	Emphasis on following rules and procedures in conducting organisational activities facilitates adoption
30	Differentiation	Organisation divided into semi-autonomous departments and units (each performing different tasks) are more likely to innovate
31	Decentralisation	If decision-making structures are not centralised, the organisation is more likely to innovate
32	Slack resources	Available resources to channel into new projects facilitates adoption
	b) Absorptive capacity for new knowledge	An organization that is systematically able to identify, capture, interpret, share, reframe, and recodify new knowledge will be better able to assimilate innovations
33	Pre-existing knowledge and skills base	Organisation's existing knowledge and skills base influences chances of adoption

34	Ability to find, interpret, recodify and integrate new knowledge	Ability to find, interpret, recodify and integrate new knowledge facilitates adoption
35	Enablement of knowledge sharing via internal and external networks	Proactive leadership directed towards enabling knowledge sharing facilitates adoption
	c) Receptive context for change	Organizational features independently associated with the ability to embrace new ideas and face the prospect of change
36	Leadership and vision	Strong leadership (break out of the convergent thinking and routines) and clear strategic vision facilitates adoption
37	Good managerial relations	Good relations between managers in the adopting organisation facilitates adoption
38	Risk-taking climate	Climate conducive to experimentation and risk-taking is more likely to result in adoption
39	Clear goals and priorities	Clear goals and priorities (with regard to the innovation) increase chances of adoption
40	High-quality data capture	Effective data capture systems to document the benefit of the innovation increases chances of adoption
	VI. SYSTEM READINESS FOR INNOVATION	*An organization may be amenable to innovation in general but not ready or willing to assimilate a particular innovation*
41	Tension for change	If staff perceive that the current situation is intolerable, a potential innovation is more likely to be assimilated successfully
42	Innovation-system fit	An innovation that fits with the organization's existing values, norms, strategies, goals, skill mix, supporting technologies, and ways of working is more likely to be assimilated
43	Power balances (supporters vs. opponents)	If the supporters of the innovation outnumber and are more strategically placed than its opponents are, the innovation is more likely to be assimilated
44	Assessment of implications	If the implications of the innovation are fully assessed and anticipated, the innovation is more likely to be assimilated
45	Dedicated time, funds	If the allocation of resources is both adequate and continuing, assimilation is more likely
46	Monitoring and feedback	If the organization has tight systems and appropriate skills in place to monitor and evaluate the impact of the innovation, the innovation is more likely to be

		assimilated
	VII. THE OUTER CONTEXT	*An organisation's decision to adopt an innovation depend on a number of external influences*
47	Socio-political climate	A policy "push" occurring at the early stage of implementation of an innovation initiative can increase its chances of success by making available a dedicated funding stream
48	Incentives and mandates	Formal initiatives from the outside to adopt the innovation (e.g. NICE recommendation)
49	Inter-organisational norm-setting and networks	Whether a threshold proportion of comparable organizations have adopted the innovation
50	Environmental stability	Environmental uncertainty has either a small positive impact or no impact on innovativeness
	VIII. THE IMPLEMENTATION PROCESS	*The early usage activities that often follow the adoption decision*
51	Decision-making devolved to front-line teams	If operational decision-making is devolved to teams on the ground, successful implementation is more likely
52	Hands-on approach by leaders and manager	Management support and continued commitment to it enhance the success of implementation. If the innovation aligns with earlier goals of management and if the leaders are actively involved and frequently consulted, the innovation is more likely to be routinised.
53	Human resource issues, especially training	Early and widespread involvement of staff at all levels, perhaps through formal facilitation initiatives, enhances the success of implementation and routinisation. When job changes are few and clear, high-quality training materials are available, and timely on-the-job training is provided, successful implementation is more likely
54	Dedicated resources	If there is dedicated and ongoing funding (incl. staff) for its implementation, the innovation is more likely to be implemented
55	Internal communication	Effective communication across structural boundaries within the organization enhances the success of implementation
56	External collaboration	The more complex the implementation that is needed for a particular innovation, the greater the significance of the inter-organizational network will be to the implementation's success

57	Reinvention or development	If an innovation is adapted to the local context, it is more likely to be successfully implemented
58	Feedback on progress	Accurate and timely information about the impact of the implementation process increases the chance of successful routinisation
	IX. LINKAGE	*Building strong links between the Adopter Organisation (AO) and the Change Agency (CA)*
59	Product augmentation (technical help)	If the CA possesses the skills to assist with technical issues, adoption is more likely
60	Project management support	If the CA possesses the project management skills to assist with operational issues, adoption is more likely
	a) Design stage	An innovation is more likely to be successfully adopted if the developers are linked with potential users at the development stage
61	Shared meaning and mission	If the AO and the CA share a common language, meanings and value systems adoption is more likely
62	Effective knowledge transfer	Sharing of knowledge between the AO and the CA facilitates adoption
63	User involvement in specification	Involvement of the AO through requests for new functionalities facilitates adoption
64	Capture of user-led innovation	If the CA adopts and builds upon the AO's innovative practices, routinisation is more likely
	b) Implementation stage	Linkage activities between the AO and the CA at the implementation stage
65	Communication and information	Good communication between the AO and the CA during implementation facilitates adoption
66	User orientation	Orientation by the CA toward the needs of the AO during implementation facilitates adoption

b) Barriers (↓) and Boosters (↑) by Leads (L) and Supporters (S) and Likes (☺) / Don't Likes (☹) by Supporters (S)

	L ↓	L ↑	S ↓	S ↑	S ☺	S ☹
FearFighter™						
Suitability						
1. Comorbidity	0	0	1	0	0	0
2. (Phobia) specific	1	0	10	2	4	11
3. For younger generation	0	0	0	1	0	1
4. Does not fit patients	0	0	0	0	0	2
5. For anxiety	0	0	0	0	2	0
6. Unspecific	0	0	0	0	0	1
7. For panic	0	0	0	0	1	0
8. Avoidance	0	0	0	1	2	0
9. Severe presentation	0	0	4	0	0	0
10. Appropriateness	1	1	8	3	0	0
Technical aspects						
11. Videos	0	0	0	1	0	1
12. Unstructured ending	0	0	0	0	0	3
13. Audio	0	0	0	0	1	1
14. Time breaks between steps	0	0	0	2	1	3
15. Reading age	0	0	1	0	0	0
16. Inflexible	0	0	2	1	2	8
17. Layout, web interface	0	0	0	0	3	5
18. Better program	0	0	0	2	0	0
19. Technical problems	0	0	2	0	1	1
20. Structured support calls	0	0	0	0	0	1
21. Interactivity	0	0	0	0	1	0
22. Login procedures	0	0	0	0	0	3
23. Slow	0	0	0	0	0	1
24. Usernames	0	0	0	0	0	1
25 Accessibility of printouts	0	0	0	0	0	1
25. Exposure pictures	0	0	0	0	0	1
27. Monitoring of patients	0	0	0	0	2	4
28. Feedback	0	0	1	0	0	0
29. Translation in other languages	0	1	0	1	0	0
30. Better structure	0	0	0	6	0	2
Clinical aspects						
31. Case studies	0	0	0	0	5	2
32. Goal settings	0	0	0	1	2	0
33. Fear hierarchy	0	0	0	1	0	0
34. Safety behaviours	0	0	0	0	0	1

	L		S		S	
	↓	↑	↓	↑	☺	☹
35. Cognitive restructuring	0	0	0	1	1	1
36. Homework	0	0	0	0	1	0
37. Risk assessment	0	0	1	1	1	1
38. Diary	0	0	0	0	1	0
39. How to challenge your fears	0	0	0	0	1	0
40. Program back-to-front	0	0	0	0	0	3
41. Too long	0	0	0	0	0	2
42. Finding a helper	0	0	0	0	1	0
43. Graded exposure	0	0	0	0	3	3
44. Psychoeducation, self-help material	0	0	0	1	6	1
45. Exposure	0	0	2	0	3	0
46. NICE recommendation	0	0	0	2	0	0
47. Evidence	0	0	0	2	0	0
48. Effectiveness	0	1	2	0	7	0
49. Relapse prevention	0	0	0	0	1	0
50. Structured	0	0	0	0	11	0
51. Preparatory for the actual exposure therapy	0	0	0	0	2	0
52. Confidentiality	0	0	0	1	1	0
53. Depth	0	0	0	2	0	1
General						
54. The fact it is computational	0	0	1	1	0	1
55. Isolating	0	0	1	0	0	1
56. Paperless	0	0	0	0	1	0
57. Simple	0	0	1	0	26	7
58. Empowering	0	0	0	0	2	0
59. Quick	0	0	1	0	2	1
60. Language	0	0	2	1	1	5
61. How personal it is	0	0	1	1	0	6
62. Data collection	0	0	0	0	2	3
63. Complicated	0	0	0	0	0	1
64. Training	0	1	1	5	0	1
65. Drop outs, not engaging	0	0	6	0	0	11
66. Relevance to patients	0	0	1	1	0	0
67. Administrative	0	0	2	4	0	0
68. Licensing agreements	0	0	3	1	0	0
69. Company support	0	1	0	0	2	0
70. Difficult	0	0	1	0	0	2
Patients						
71. Satisfaction	0	0	1	0	0	0
72. Motivation	0	0	9	1	0	6
73. Unwilling to use computers	0	0	5	1	0	1

	L		S		S	
	↓	↑	↓	↑	☺	☹
74. Choice	1	0	9	0	0	0
75. Extra resources	0	0	0	0	1	0
76. Patient confusion	0	0	1	0	0	0
77. Expectations	0	0	2	0	0	0
78. Feedback	0	0	0	1	0	0
79. Accessibility	1	0	7	1	10	0
80. Preference for other treatments	5	0	14	0	0	4
81. Confidence	0	1	0	0	0	0
Supporters						
82. Satisfaction	0	0	1	0	0	0
83. Forget to mention as a treatment option	1	0	1	0	0	0
84. Opinion of the program	0	0	3	0	0	0
85. Time	0	0	0	1	3	0
86. Relevance to supporter	0	0	4	3	0	1
87. Support	0	1	3	2	0	2
88. Example of success	1	1	3	0	0	0
89. Practice with the package	0	1	3	2	0	0
90. Additional contacts with practitioners	0	0	0	2	0	2
92. Confidence	1	1	0	0	0	0
93. Motivation	1	0	0	0	0	0
94. Attitude	3	1	0	0	0	0
95. Preference	1	0	0	0	0	0
96. Initial contact with the patient	1	1	0	0	0	0
Service provider						
97. Offering as main option	0	1	0	1	0	0
98. Access from clinic	0	0	0	1	0	0
99. Integration with other treatments	0	1	0	13	0	0
100. Dedicated worker	0	1	0	1	0	0
101. Involvement of managers	0	0	0	1	0	0
102. Additional resources to deliver *FF*	2	2	0	4	0	0
103. Service needs-design	1	0	1	2	0	0
104. Additional hours	1	0	0	0	0	0
105. Lack of experience	2	0	0	0	0	0
106. Delay in availability of service	1	0	0	0	0	0
107. Choice	1	1	0	0	0	0
108. Protocol for delivery	1	0	0	0	0	0
GPs						
109. GPs	0	1	0	3	0	0
Awareness						
110. Marketing	2	11	3	27	0	0

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